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ABSTRACT

The relationship between oral reading ability and the use of structure (function) words was examined in a dissertation study which hypothesized that the use of structure words in verbal discourse would be greater in children who have no difficulty in oral reading than in children who experience difficulty. Structure words were identified as those which carry no lexical meaning and which serve as markers, connectives, etc. Subjects were 85 fourth graders selected from a Mississippi school system on the basis of average intelligence, vision, hearing, and physical abilities. An oral reading screening device was administered to all subjects who were then grouped according to difficulty experienced in reading the 180 structure words in the 509-word passage. In addition, a verbal discourse passage similar in length to the reading passage was solicited from each subject and analyzed for type and frequency of structure words. Data were analyzed using t tests which resulted in confirmation of significant differences in structure word errors in oral reading and in use of structure words for the two groups. It was concluded that a close relationship exists between structure word usage in reading and in verbal discourse. A bibliography and tables are included. (MS)

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STRUCTURE WORD USAGE IN THE VERBAL DISCOURSE OF TWO GROUPS OF CHILDREN

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BY

SAMUEL VARNER DAUZAT

B.A., Northwestern State College, 1964
M.A., Northwestern State College, 1966

A Dissertation
Submitted to the Faculty of
The University of Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education
in the School of Education

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ABSTRACT

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DAUZAT, SAMUEL V. B.A., Northwestern State College, 1964.
M.A., Northwestern State College, 1966. Ed.D.,
University of Mississippi, 1968. Dissertation
directed by Professor John R. Rogers.

Problem. The major purpose of the investigation was to determine whether a relationship between oral reading of structure words and the use of structure words in verbal discourse actually exists. On the basis of the purpose for the research, the following null hypothesis was advanced.

The use of structure words in the verbal discourse of children who experience difficulty in the oral reading of structure words, as determined by a screening device for oral reading, will not differ significantly from the use of structure words in the verbal discourse of children who do not experience difficulty in the oral reading of structure words, as determined by a screening device for oral reading.

Procedures. In order to test the hypothesis, 85 fourth grade pupils from selected elementary schools in Lafayette County, Mississippi, were chosen from 246 fourth graders on the basis of pre-determined criteria--IQ from 90 to 110, no premature promotions or retentions in one or more grades, satisfactory scores on speech, hearing, and vision tests, no physical handicaps, and membership in lower middle-class families. Each of the 85 pupils was administered a screening device for oral reading which was taken from the central portion of the second fourth reader from Scott, Foresman and Company, More Times and Places, the adopted text for the elementary schools in Lafayette County. The selection consisted of 509 words, 180 of which were structure words. On the basis of performance on the screening device, and in keeping with pre-determined standards, the population was divided into Group A, whose members were considered to have profound difficulty in the oral reading of structure words, and Group B, whose members were considered to be lacking in profound difficulty in structure word usage in oral reading. Verbal discourse samples consisting of approximately the same number of words as was contained in the screening device were procured for each pupil. The samples were transcribed and structure word errors were noted and represented as the ratio of the number of structure word errors made to the total number of structure words used in verbal discourse. The differences between the mean ratios of structure word errors for each group were compared by means of a t test.

Conclusions. On the basis of the results obtained in the investigation, the following conclusions seemed warranted:

1. A significant difference between the mean ratio of structure word errors for Group A and the mean ratio of errors for Group B was found, with Group A having the higher mean ratio of structure word errors in verbal discourse; therefore, those children who had difficulty in the oral reading of structure words experienced similar difficulties with the use of structure words in their verbal discourse.
2. Those children who had difficulty in reading structure words tended to use fewer structure words in verbal discourse than did those children who did not have difficulty in reading structure words. It appeared that a close relationship exists between structure word usage in reading and in verbal discourse, and difficulty in reading structure words is suggestive of a general language anomaly.

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BY

SAMUEL VARNER DAUZAT

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VITA

Samuel Varner Dauzat, son of the late Sam Dauzat and Josephine Varner Dauzat, was born November 7, 1942, in New Orleans, Louisiana.

He received his elementary school training from Our Lady of Prompt Succor and St. Francis Cabrini elementary schools, Alexandria, Louisiana, and was graduated from Bolton High School in 1960.

In June, 1964, he was graduated from Northwestern State College, Natchitoches, Louisiana, with the Bachelor of Arts degree in elementary education.

He was married in 1963 to the former Jo Ann Vermaelen. They have two children, Samuel Scott, three years of age, and Jeffrey Joseph, two years of age.

He entered the graduate school of education at Northwestern State College, Natchitoches, Louisiana, in June, 1964, and was awarded the Master of Education degree in elementary education in June, 1966.

From 1964 to 1966, he taught language-arts, social studies, and mathematics at Brame Junior High School in Alexandria, Louisiana. In September, 1966, he accepted a graduate assistantship in the Reading Services Center at the University of Mississippi in order that he might pursue the Doctor of Education degree in elementary education.

He is a member of Phi Delta Kappa and the International Reading Association.

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The writer wishes to express his gratitude and appreciation to all individuals who assisted in the planning, organization, and development of the study. Appreciation is especially expressed to the members of the writer's committee: Dr. John R. Rogers, who directed the study; and to Dr. Edward Capps, Dr. J. David Mohler, and Dr. Harley F. Garrett for their encouragement and assistance whenever it was needed.

The writer wishes to express his appreciation for the contributions of the eighty-five children who took an active part in the study. Special appreciation is extended to the fourth grade teachers and principals of the elementary schools in Lafayette County, Mississippi, and to the superintendents of education who approved their participation in the study.

And finally, the writer wishes to express his sincere appreciation to his wife, Jo Ann, for untiring love, patience, and moral support. The final phase of the study was greatly facilitated by her secretarial and editorial assistance. To his children, Samuel Scott and Jeffrey Joseph, the writer is deeply grateful for their help in providing extra incentive for completion of the dissertation.

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CHAPTER I

INTRODUCTION

Upon their entry into school, children have mastered oral language to the extent that they are able to communicate complex ideas, a variety of emotions, and infinite desires with remarkable skill. Children learn language through imitation of native speakers in their environments. Children learn the communication system used in their particular environments. By the time a normal child reaches school age, he has adopted the language system, the sounds, grammar, and vocabulary of his home and his neighborhood.[1]

However, there are vast differences in the quality and the quantity of the language experiences which children have had when they enter school. The language experiences of children form the foundation for learning other language skills.[2] It seems, then, that an inadequate language background must form a weak foundation for learning language skills, particularly learning reading skills.

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[1] Doris I. Noel, "A Comparative Study of the Relationship Between the Quality of the Child's Language Usage and the Quality and Types of Language Used in the Home," Journal of Educational Research, XLVII (1953), 167.

[2] Ruth G. Strickland, "The Language of Elementary School Children: Its Relationship to the Language of Reading Textbooks and the Quality of Reading of Selected Children," Bulletin of the School of Education Indiana University, XXXVIII (July, 1962), 1.

Many children who have failed to learn to read adequately have habits which are characterized by misreading of structure words. It appears possible that inability to cope adequately with structure words in oral reading might be the result of a flaw in the foundation for reading skill, the language experience of the child.

I. THE PROBLEM

Educators, particularly reading specialists, have noted that a great many children with reading disabilities are prone to omit, reverse, substitute, and otherwise fail to cope adequately with structure words in their oral reading.[3] Since there was a need to investigate the nature of disabilities in the oral reading of structure words, and since there has been very limited research done in the field, the topic was selected for investigation.

The study was designed to compare the structure word usage in verbal discourse of children who have been identified as having difficulties in oral reading of structure words to the usage of structure words in the verbal discourse of children who have been identified as having no obvious difficulty with structure words in oral reading. The purpose of the study was to determine whether a relationship between oral reading of structure words and use of structure words in verbal discourse actually exists.

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[3] John R. Rogers, Professor of Education and Director of Reading Services Center, University of Mississippi, School of Education, interview on April 5, 1967.

II. SIGNIFICANCE OF THE STUDY

Structure words are vital to reading comprehension, and the misreading of one structure word may easily change the meaning of an entire sentence.[4] Because of the essential nature of structure words, the child who consistently has difficulty in reading structure words is severely handicapped. The problem is, indeed, serious because structure words are common to all stories.[5] In fact, Fries estimates that one-third of the bulk of all printed materials is composed of structure words.[6] Dolch maintains that his list of 220 sight words comprises 63 per cent of the entire vocabulary of third grade reading texts. Since almost one-half of the Dolch list is devoted to structure words, at least one-third of the vocabulary of third grade reading texts may consist of structure words. About 43 per cent of the Fry list of 300 Instant Words involves structure words.[7]

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[4] John R. Rogers (ed.), Linguistics in Reading Instruction (University, Mississippi: The Reading Clinic, 1965), p. 83.

[5] Edward W. Dolch, Psychology and Teaching of Reading (Champaign, Illinois: The Garrard Press, 1951), p. 180.

[6] Charles Carpenter Fries, The Structure of English (New York: Harcourt, Brace, and World, Incorporated, 1952), p. 104.

The occurrence of structure words in any text is independent of the subject discussed and the particular literary style.[8] Although the structure words are relatively few in number, they have a more dense distribution than any other class of words in the English language.[9]

In the early language of children, structure words are omitted. The early speech of children involves only lexical words.[10] Structure word usage in verbal discourse is characteristic of more mature language. The language proficiency of a child may be a factor in reading ability. Goodman believes that natural speech usage may be an answer to the question of why some children have difficulty with certain items in reading. He expresses the belief that children read their own speech off the printed page, substituting and correcting where the book is incorrent in terms of their own knowledge of language.[11]

---

[7] Carl A. Lefevre, Linguistics and the Teaching of Reading (New York: McGraw-Hill Book Company, 1964), p. 141.

[8] H. A. Gleason, An Introduction to Descriptive Linguistics (New York: Holt, Rinehart and Winston, Inc., 1955), p. 159; Dolch, op. cit., p. 181.

[9] Rogers, op. cit., p. 83.

[10] Ruth G. Strickland, "Breaking the Dialect Barrier," The Florida Reading Quarterly, III (March, 1967), 159.

Because of the essential nature of structure words in reading, there is a need to investigate the problem of structure word usage by children. The present study attempted to determine if structure word difficulties in oral reading are reflections of general oral language deficiencies or if such difficulties exist as reading problems independent of oral language ability.

III. DEFINITION OF TERMS

Structure Words

There is general disagreement among linguists as to which words in the English language can be classified as structure words. This is evidenced by the fact that although Lefevre states that there are 107 structure words in the Dolch list of 220 words,[12] Glim says that the same list contains 104 structure words.[13] Some authorities say that there are about 300 structure words in the English language,[14] and others say that there are 200 structure words in the language.[15] Fries identifies 154 English structure words in his list, but he does not say that the list is exhaustive.[16] Gleason states that the term, structure word, itself is useful, but it cannot be adequately defined. The group of structure words must remain vague, and "a matter of each linguist's opinion and convenience."[17]

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[11] Kenneth S. Goodman, "The Linguistics of Reading," The Elementary School Journal, XXIV (April, 1964), 360.

[12] Lefevre, op. cit., p. 119.

[13] Theodore E. Glim, "The Many Facets of Linguistics," Vistas in Reading II (Ann Arbor, Michigan: International Reading Association, Inc., 1967), p. 320.

Although there is widespread ambiguity as to the members of the class of structure words, linguists generally agree on the actual qualities and characteristics of the class itself. Structure words have few referents outside the language system, and they are relatively lacking in meaning or content.[18] The meaning of the structure word groups is entirely intralinguistic, and the structure words have no external referents in experience.[19] Roberts says that structure words belong to "closed classes," those classes of words which add no new members and whose members were admitted only very slowly as a result of natural linguistic change.[20] The structure words are very stable and the list of structure words has scarcely changed in 500 years.[21]

---

[14] Rogers, op. cit., p. 84; Lefevre, op. cit., p. 199.

[15] Kenneth S. Goodman, et al., Choosing Materials to Teach Reading (Detroit: Wayne State University Press, 1966), p. 92.

[16] Fries, op. cit., p. 102.

[17] Gleason, op. cit., p. 156.

[18] Lefevre, op. cit., p. 156; Charlton Laird, Thinking About Language (New York: Holt, Rinehart and Winston, 1966), p. 58.

[19] James Deese, The Structure of Associations in Language and Thought (Baltimore: The Johns Hopkins Press, 1965), p. 113.

Structure words are clues to reading language patterns; they show relationships among words in sentences.[22] By showing the relationship between nouns, verbs, adjectives, and adverbs, structure words make language more complex and more meaningful.[23] Only grammatical relationships are revealed by structure words.[24] They are devoid of lexical meaning and only serve to indicate relationships among the lexical words with which they appear.[25] Structure words act as structural markers, and without structure words, structural ambiguity results.[26] The absence of structure words from utterances can cause confusion in semantics.[27]

---

[20] Paul Roberts, Patterns of English (Teacher's edition; New York: Harcourt, Brace and World, Incorporated, 1956), p. 2.

[21] Joseph H. Friend, An Introduction to English Linguistics (Cleveland: The World Publishing Company, 1967), p. 126.

[22] Glim, op. cit., p. 320; Rogers, op. cit., p. 83; Owen Thomas, Transformational Grammar and the Teacher of English (New York: Harcourt, Brace and World, Incorporated, 1965), p. 53.

[23] Glim, op. cit., p. 320.

[24] Wendell W. Weaver, "The Word as the Unit of Language," Journal of Reading, X (January, 1967), 262-267.

[25] Neil Postman and Charles Weingartner, Linguistics: A Revolution in Teaching (New York: Dell Publishing Company, Incorporated, 1967), p. 59.

Pei defines a structure word as a word which is usually unstressed in sentences and which expresses primarily grammatical relationships. Structure words are used to show relationships between words.[28]

It should be noted that the class of words described above has been assigned various labels by different linguists. The class is frequently referred to as function words,[29] empty words,[30] service words,[31] small words,[32] and frame words.[33] For the purposes of this investigation, structure word was the term used to apply to the class of words previously mentioned.

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[26] Fries, op. cit., p. 106.

[27] Mario Pei, Invitation to Linguistics (Garden City, New York: Doubleday and Company, Incorporated, 1965), p. 67.

[28] Mario Pei, Glossary of Linguistic Terminology (Garden City, New York: Doubleday and Company, 1966), p. 146.

[29] Goodman, et al., op. cit., p. 92.

[30] Lefevre, op. cit., p. 140.

[31] Dolch, op. cit., p. 180.

[32] Kurt Goldstein, Language and Language Disturbances (New York: Grune and Stratton, Incorporated, 1948), p. 144.

[33] Harold Whitehall, Structural Essentials of English (New York: Harcourt, Brace, and World, Inc., 1956), p. 53.

The other terms were considered synonyms for structure words.

Because of the differences of opinions and conveniences of linguists, it was imperative that a personal list of subclasses which were considered to be structure words be constructed. The list was based on several lists proposed by different authorities.

For the purposes of the study, structure words were considered to include the following subclasses of words. The members of each subclass were considered structure words only when they functioned as such in the oral reading selection and in the recorded verbal discourse which was used in the study.

1. Noun markers are those structure words which signify that a nominal is to follow within the next few words of the utterance. The noun markers may be further sub-divided into the following classifications:
   A. Pre-determiners or pre-articles are those structure words which may occur before determiners or post-determiners in sequences, but only as the first member.[34]

---

[34] Norman Stageberg, An Introductory English Grammar (New York: Holt, Rinehart, and Winston, Incorporated, 1966), p. 224; Thomas, loc. cit.; Donald J. Lloyd and Harry R. Warfel, American English in Its Cultural Setting (New York: Alfred A. Knopf, 1965), pp. 93-99; H. A. Gleason, Jr., Linguistics and English Grammar (New York: Holt, Rinehart, and Winston, Incorporated, 1954), p. 127.

Examples

all, both, half, double, only

B. Determiners are those structure words which can occur as the second of two or second of three members which mark nouns. Most determiners cannot occur in other adjectival positions.[35] Determiners consist of four major types.[36]

1. Articles

   Examples

   a, an, the

2. Possessive pronouns

   Examples

   her, his, its, my

3. Possessives of names

   Examples

   John's, Sally's, Smith's

4. Demonstratives

   Examples

   this, that, these, those, another

C. Post-determiners are those structure words that can occur only as the last in a sequence of noun markers.[37]

---

[35] Ibid.

[36] Stageberg, loc. cit.

[37] Gleason, Linguistics and English Grammar, p. 127.

The post-determiners consist of three types.[38]

1. Cardinal numbers

   Examples

   one, two, three . . . ninety-nine . . .

2. Ordinal numbers

   Examples

   first, second . . . last

3. Possessives of common nouns

   Examples

   man's, cat's, boy's, girl's

2. Verb markers are those structure words which signal that a verb follows.[39] The verb markers are of two types.

   A. Modal auxiliaries are those structure words which never function as the main verb in an utterance.

      Examples

      may, might, should, could

   B. Auxiliaries which may function as an independent verb in some constructions are also structure words when used as verb markers.

      Examples

      do, have, be, was

---

[38] Stageberg, loc. cit.; Thomas, loc. cit.

[39] Iris M. Tiedt and Sidney W. Tiedt, Contemporary English in the Elementary School (Englewood Cliffs, New Jersey: Prentice-Hall, Incorporated, 1967), p. 34.

3. Phrase markers are those structure words which signal that a phrase is to follow. Prepositions, words placed before a nominal to indicate the relationship between the nominal and some other word group,[40] are phrase markers. Prepositions usually have the meaning of time, place, direction, or other abstract relationships.[41]

   Examples

   at, by, for, from, in, of, on, to, with

4. Adjective and adverb markers or intensifiers are structure words which serve to strengthen or emphasize the meaning of the following adjective or adverb.[42] Intensifiers occupy positions just before an adjectival or adverbial, and they are not employed in adverbial positions.[43] Intensifiers may have lexical meaning in other positions but when they are structure words, they signal a quantity or a quality for which the following adverb or adjective stands.[44]

   Examples

   quite, awfully, much, very, rather

---

[40] Viola K. Rivenbaugh, Words at Work: A Practical Approach to Grammar (New York: Bobbs-Merrill Company, Incorporated, 1965), p. 4.

[41] Ibid.

[42] Friend, op. cit., p. 136.

[43] Stageberg, op. cit., p. 227.

[44] Fries, op. cit., p. 93.

5. Clause markers consist of those structure words which serve to join subordinate subject and predicate word groups with the independent subject and predicate word group.[45] These structure words are traditionally known as subordinating conjunctions and relative pronouns.

   A. Subordinate conjunctions

      Examples

      when, because, as, although, since

   B. Relative pronouns

      Examples

      which, that, who, whoever

6. Coordinators or coordinating conjunctions are structure words which serve to join elements which are equal in logical importance and in grammatical structure.[46] The subclass is also known as levelers or equalizers. All of the words in this group appear only between words of the same part of speech but the two words between which they stand may be from any of the four major form classes of nouns, verbs, adjectives, and adverbs.[47]

   Examples

   and, or, not, but

---

[45] Tiedt and Tiedt, op. cit., p. 33.

[46] Ibid.

[47] Fries, op. cit., p. 95.

7. Question markers are those structure words which usually occur in initial word position in constructions and signal that the construction is interrogative. Question markers can also occur as "single-word utterances in 'response' sentence units."[48]

   Examples

   who, _where_, _how_, _which_, _what_

8. Conversation starters are those structure words which serve only to facilitate conversations and are usually independent of the other words in the utterance.[49] They also serve to arouse the attention of the receiver.[50] Conversation starters may also occur at the beginning of "sentences that continue rather than introduce conversations."[51]

   Examples

   _oh_, _now_, _well_, _say_

9. Negatives are structure words near the verb which serve to denote a negative statement.

   Examples

   not, _never_

---

[48] _Ibid_., p. 99.

[49] Rivenbaugh, _op_. _cit_., p. 5.

[50] Fries, _op_. _cit_., p. 90.

[51] _Ibid_., p. 101.

10. Proposers are those structure words which introduce statements and make clear that the statement is intended to be a request rather than a command.[52]

    Examples

    please, if you please, let's

11. Expletives are those structure words which function as pattern fillers in utterances.[53]

    Examples

    there, it

12. Introducers of affirmation or negation serve to emphasize the positive or negative meaning of the statement. The meaning of affirmation and negation is usually supported by the utterances which they introduce.[54]

    Examples

    yes, no

It should be noted that some authorities consider personal pronouns as structure words. However, since this practice was not recognized by the majority of the linguistic works consulted, personal pronouns were not considered as structure words for this investigation. Still, those linguists who propose to add personal pronouns to the list of structure words have a strong case, and the final decision as to whether to include personal pronouns has not as yet been resolved by the authorities.[55]

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[52] Lefevre, loc. cit.; Fries, op. cit., p. 103.

[53] Lefevre, op. cit., p. 96.

[54] Fries, op. cit., p. 102.

In keeping with the decision not to count personal pronouns as structure words for the study, the investigator found it necessary to exclude contractions involving personal pronouns and auxiliary verbs from the group of structure words.

Lexical Words

Lexical words belong to the "open classes," those classes which add new words indefinitely and are infinite in size.[56] Pei says that lexical words are linguistic forms which are considered in purely formal character as vocabulary items.[57] The lexical or full words provide the substance of a sentence.[58]

Lexical meaning is that kind of meaning which is associated with separate morphemes or groups of morphemes. Lexical meaning is that type of meaning described in a dictionary.[59]

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[55] Carl A. Lefevre, personal correspondence, December 14, 1967.

[56] Roberts, *op. cit.*, p. 21.

[57] Pei, *Glossary of Linguistic Terms*, p. 146.

[58] Thomas, *op. cit.*, p. 53.

[59] W. Nelson Francis, *The Structure of American English* (New York: The Ronald Press Company, 1958), . 227.

The lexical words belong to the four major form classes of nouns, verbs, adjectives, and adverbs. They are readily definable and serve functions other than connecting words in sentences.[60]

Oral Reading Errors

In the study, the following were defined as oral reading errors.

1. Substitutions--reading a word which could properly fit into the context of the sentence, other than the word printed in the material.
2. Reversals--reading the correct letters in words in a reversed order, or reading whole words in reversed order.
3. Repetitions--reading the printed word and calling it more times than it is printed.
4. Insertions--calling words which do not occur in the printed text.
5. Omissions--failing to read words which occur in the printed text.
6. Mispronunciations--reading nonsense words for those words printed in the material.
7. Aids--failing to identify a word within five seconds and, therefore, requiring teacher pronunciation.

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[60] Friend, op. cit., p. 113.

Verbal Discourse

As used in the investigation, verbal discourse was defined as the free flow of language in response to specified stimuli.

Structure Word Difficulties in Oral Reading

Oral reading errors involving substitutions, reversals, mispronunciations, repetitions, insertions, and omissions of structure words were considered as structure word difficulties in oral reading.

IV. LIMITATIONS OF THE STUDY

The study was limited to 85 children of normal intelligence, within the range from 90 to 110 according to the Otis Lennon Mental Ability Test, Elementary II Level, Form J, who were in the fourth grade in selected elementary schools in Lafayette County, Mississippi. The study involved only those children who had never failed to be promoted, and no children who had been prematurely promoted were involved. The population was further restricted to pupils who had no articulatory defects or noticeable physical handicaps. The populus was neither from lower socio-economic families nor from higher socio-economic families.

CHAPTER II

REVIEW OF RELATED LITERATURE

There had been very little research conducted which directly concerned the investigation; however, several authors presented ideas and research findings which yielded valuable insights into certain phases of the research and theory backing the investigation. No research was reported which treated children's use of structure words in any aspect. Studies which were concerned with the development of verbal discourse skills and reading skills, correlations between language skills, and language deficiencies were cited in this chapter. Much of the literature which treated the topics of structure words or children's language was statement of theory, which was also reported in the chapter.

I. THE EARLY LANGUAGE DEVELOPMENT OF CHILDREN

Factors Influencing Language Development

There has been considerable controversy over the manner in which language, that purely human and noninstinctive method of communicating ideas, emotions, and desires through voluntarily produced symbols,[1] is acquired and those factors which affect acquisition. Language consists of a set of words with a habitual manner in which they are put together.[2] Marquardt presented a theory which states that all language learning is made possible through habits, physiological functions, physical environment, and social interactions.[3] McCarthy agreed that the quality of a child's early linguistic environment is the most important external factor affecting the rate of language development.[4] In a study conducted by Noel, she reached the conclusion that by the time the child arrives at school, he has already learned to speak the dialect of his home and neighborhood,[5] thereby asserting that environment is crucial in language learning.

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[1] Edward Sapir, "Language Defined," Introductory Readings on Language, eds. Wallace L. Anderson and Norman C. Stageberg (revised edition; New York: Holt, Rinehart and Winston, 1966), p. 5.

Loban compiled a list of factors influencing language development in children. The list included the following items:

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[2] Robert A. Hall, Jr., "Language, Individual and Society," Introductory Readings on Language, eds. Wallace L. Anderson and Norman C. Stageberg (Revised edition; New York: Holt, Rinehart and Winston, 1966), p. 372; L. M. Myers, "Language, Logic, and Grammar," Introductory Readings on Language, eds. Wallace L. Anderson and Norman C. Stageberg (revised edition; New York: Holt, Rinehart and Winston, 1966), p. 15.

[3] William F. Marquardt, "Language Interference in Reading," The Reading Teacher, XVIII (December, 1964), 215.

[4] Dorothea McCarthy, "Language Disorders and Parent-Child Relationships," Journal of Speech and Hearing Disorders, XIX (1954), 519.

[5] Doris I. Noel, "A Comparative Study of the Relationship Between the Quality of the Child's Language Usage and the Quality and Types of Language Used in the Home," Journal of Educational Research, XLVII (1953), 166.

1. Security with parents and authority symbols
2. Adequate language ability among family members
3. Variety of experiences
4. Encouragement and opportunity for self-expression
5. Adequate, balanced diet
6. Sufficient rest
7. Physical facility in speech production
8. Adequate personal health.[6]

Development of Oral Language

Bruner maintained that a child's speaking vocabulary grows from small, picturable categories to wider and more subtle, unpicturable ones. Language learning is a cumulative process of building the meanings of referents for words and broadening the contexts into which they fit.[7]

Brown and Bellugi proposed that children learn language in imitation of adult speech, and they tend to retain some words and omit others. They said that those words likely to be retained are nouns, verbs, adjectives, and adverbs--the "open" classes of speech which are the lexical words. Those forms omitted were inflections, auxiliary verbs, articles, prepositions, and conjunctions--the "closed" classes of speech which are the structure words.[8] The authors attempted an explanation which states that perhaps the heavier stress which is placed on lexical words in contrast to the lighter stress placed on function words accounts for the phenomenon because the childred usually retain stressed words or stressed portions of words.[9]

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[6] Walter Loban, Language Ability (Washington: U. S. Department of Health, Education, and Welfare, U. S. Government Printing Office, 1966), p. 2.

[7] Jerome S. Bruner, Rose R. Olver, and Patricia Greenfield, Studies in Cognitive Growth (New York: John Wiley and Sons, Incorporated, 1966), p. 34.

Strickland agreed that the early speech of children involves only the key meaning-bearing words, ignoring structure words which hold the sentence together and provide shades of meaning.[10]

In their report of 1964, Brown and Fraser formulated the hypothesis that the speech of children reflects a systematic reduction of adult speech. The reduction to which the authors referred was accomplished by the child's omission of the function words which "carry little information."[11] The report was in accord with other authors.

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[8] Roger Brown and Ursula Bellugi, "Three Processes in the Child's Acquisition of Syntax," Language and Learning, eds. Janet A. Emig, James T. Fleming, and Helen M. Popp (New York: Harcourt, Brace and World, 1966), p. 9.

[9] Ibid., p. 10.

[10] Ruth G. Strickland, "Breaking the Dialect Barrier," The Florida Reading Quarterly, III (March, 1967), 13.

Bruner wrote that the "small" words are the last words that the child acquires and that these words are crucial for converting complex experiences and complex expectancy into a "form that makes internal review possible."[12]

Frost maintained that the child's first words deal with concrete objects and events and the speech of the child is expanded to include abstract terms even before the child is capable of formulating complete sentences.[13] In his report of the associationist theory of language development, Vigotsky reported that the theory maintains that all words, from the most concrete to the most abstract, appear to be constructed in the same manner.[14]

However, Carroll's works disagreed, and he maintained that many words are learned pre-verbally and these represent concepts. Carroll said that even function words can represent concepts. His examples included the following items.

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[11] R. M. Brown and C. Fraser, "The Acquisition of Syntax," Child Development, XXIX (January, 1965), 78.

[12] Jerome S. Bruner, Toward a Theory of Instruction (Cambridge: The Balknap Press of Harvard University Press, 1966), p. 15.

[13] Joseph L. Frost, "Language Development in Children," Guiding Children's Language Learning, ed. Pose Lamb (Dubuque, Iowa; Wm. C. Brown Company, Pub., 1967), p. 5.

[14] L. S. Vigotsky, "Thought and Speech," Psycholinguistics: A Book of Readings (New York: Holt, Rinehart, and Winston, 1961), p. 511.

1. Prepositions - in, to, above, below, near represent subtle concepts of spatial relations.
2. Conjunctions - and, but, however represent concepts of logical inclusion and exclusion, similarity and differences of propositions.

Carroll's theory of language operation required that words be paired with the representative concept as an experience and that the word must evoke the concept and the concept must evoke the word.[15]

Horn maintained that certain quantitative concepts such as few and many are so difficult that children cannot give interpretations to them because they cannot think in relative terms.[16]

The ideas presented by Ausubel seemed in agreement with other authors about the necessity of concrete experiences preceding language meanings. He said that the initial emergence of abstract meanings must be preceded by an adequate background of concrete experiences.[17] He further stated that children's cognitive organizations differ from those of adults in that the children have fewer abstract concepts and fewer higher-order abstractions than do adults.[18]

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[15] John B. Carroll, "Words, Meanings, and Concepts," Language and Learning, eds. Janet A. Emig, James T. Fleming, and Helen M. Popp (Atlanta: Harcourt, Brace and World, 1966), p. 82.

[16] Ernest Horn, Methods of Instruction in Social Studies (New York: Scribner, 1937), p. 94.

[17] David P. Ausubel, The Psychology of Meaningful Verbal Learning (New York: Grune and Stratton, 1963), p. 55.

Deese analyzed the data of Jones and Fillenbaum and demonstrated that the associative data yield meaningful structures for the nonsemantic class of function words as well as for lexical words. Even grammatical concepts demonstrated by word order and function words revealed themselves in associative processes;[19] therefore, according to the data analyzed, the development of structure words was preceded by the development of concepts with which to associate the structure words.

Myers postulated that words are not permanently stored in the brain. He maintained that an association of a given word with a given situation persists and the "recurrence of some aspect of that situation, either in physical fact or in mental review, is likely to reactivate the circuit, and he is again conscious of the word."[20]

Hayakawa reduced the question of language learning to the matter of correctly correlating words to things and happenings for which they stand.[21]

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[18] Ibid., p. 56.

[19] James Deese, The Structure of Associations in Language and Thought (Baltimore: The Johns Hopkins Press, 1965), pp. 114-115.

[20] Myers, op. cit., p. 21.

Bloom proposed the following as principles for language development.

1. Growth in language proficiency takes place constantly.
2. Each child has a different pattern of development of language maturity.
3. The rate of language growth is dependent upon a wide range of factors.[22]

Jacobsen and Halle set forth the theory that there are two independent processes operating in normal speech. The first process was said to be the use of words to symbolize concepts, while the second process was the use of structural forms in order to produce connected speech or verbal discourse.[23] The hypothesis of Jacobsen and Halle was tested by Goodlass and Myer. They used patients with aphasia and found that the two processes discussed by Jacobsen and Halle could be differentially impaired.[24]

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[21] S. I. Hayakawa, "Abstraction," Introductory Readings on the English Language, ed. Richard Braddock (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1962), p. 242.

[22] Robert M. Bloom, "A Program for Oral English," Guiding Children's Language Learning, ed. Pose Lamb (Dubuque, Iowa: Wm. C. Brown Company, Pub., 1967), pp. 93-94.

[23] Roman Jacobsen and M. Halle, "Fundamentals of Language," Psycholinguistics: A Book of Readings, eds. Sol Saporta and Jarvis R. Bastian (New York: Holt, Rinehart and Winston, 1961), p. 110.

[24] Goodlass and Myer, cited by Hildred Schulle and James

Some authors were able to define particular oral language skills which signify a high level of language development. Many of the higher level language skills involved implicit use of structure words.

Strickland reported that those children in her study who had low ability in oral interpretation used a large proportion of short utterances which involved very simple sentences in their language sample.[25]

Loban stated that the difference between effective and non-effective language users is not the control of sentence patterns but the amount of flexibility and modification of ideas within the patterns, which is ultimately dependent upon structure word usage.[26] He stated in another publication that the use of dependent phrases and clauses enables speakers to communicate more complex propositions than are possible with independent clauses alone. He proclaimed that subordination makes possible more coherent organization of related statements

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T. Jenkins, "The Nature of Language Defects in Aphasia," _Psycholinguistics: A Book of Readings_, eds. Sol Saporta and Jarvis R. Bastian (New York: Holt, Rinehart and Winston, 1961), p. 429.

[25] Ruth G. Strickland, "The Language of Elementary School Children: Its Relationship to the Language of Reading Textbooks and the Quality of Reading of Selected Children," _Bulletin of the School of Education Indiana University_, XXXVIII (July, 1962), 73.

[26] Walter Loban, "Oral Language Proficiency Affects Reading and Writing," _Issues and Innovations in the Teaching of Reading_, ed. Joe L. Frost (Glenview, Illinois: Scott, Foresman and Company, 1967), p. 18.

and that subordinate statements are more complex than parallel statements.[27] In another study, Loban found that subordination is a more mature and more difficult form of language expression. Relationships were shown through the use of phrases and dependent clauses.[28] He reported that the use of grammatical subordination through the use of structure words increases with chronological age, mental ability, language ability, and socioeconomic status.[29]

Sweet said that the real complexity of English grammar is the function words of the language.[30]

Turton reported that three and five year old children were able to perform better with non-verbal responses for ten prepositions, _in_, _out of_, _on_, _off_, _under_, _over_, _by_, _between_, _in front of_, than with verbal responses. The children had some concept of the meaning of the prepositions but they were unable to present them in oral language.[31]

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[27] Loban, _Language Ability_, p. 11.

[28] Walter D. Loban, _The Language of Elementary School Children_ (Research Report, No. 1; Champaign, Illinois: National Council of Teachers of English, 1963), pp. 17-18.

[29] Loban, _Language Ability_, p. 91.

[30] Waldo Sweet, "A Quick Look at English," _Introductory Readings on Language_, eds. Wallace L. Anderson and Norman C. Stageberg (revised edition; New York: Holt, Rinehart and Winston, 1966), p. 473.

[31] James Lawrence Turton, "The Status of Ten Prepositions in the Verbal and Nonverbal Response Patterns of Children During the Third and Fourth Years of Life" (unpublished Doctor's dissertation, University of Kansas, Lawrence, 1966).

Jenkinson made the statement that the use of many of the connectives may not reach full maturity until the individual is about twelve years of age. He thought that many children may use the structure words in verbal discourse, but confuse the exact meanings.[32]

The research conducted by Loomis and Moran revealed that the use of articles in written composition was a better index of mental capacity than the use of any other part of speech.[33]

In his study of children's conversation, Zyve found that among third grade children prepositions, conjunctions, and articles were the most frequently used parts of speech.[34]

Early Reading Development

Betts said that reading is the process of reconstructing personal experiences through the symbols of language.[35]

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[32] M. D. Jenkinson, "Comprehension and Some Linguistic Fallacies," New Frontiers in College-Adult Reading, eds. George B. Chick and Merril M. May (Milwaukee: Fifteenth Yearbook of the National Reading Conference, 1966), p. 185.

[33] C. P. Loomis and A. M. Moran, "Relation Between Use of Different Parts of Speech in Written Composition and Mental Ability," Journal of Educational Psychology, XXII (1931), 470.

[34] C. I. Zyve, "Conversation Among Children," Teachers College Record, XXIX (1927), 59.

[35] Emmett A. Betts, "A New Area: Reading and Linguistics," Reading Instruction: Dimensions and Issues, ed. William K. Durr (Boston: Houghton Mifflin Company, 1967), p. 283.

Carroll viewed reading as the perception and comprehension of written messages in a manner which parallels the corresponding spoken messages.

> That is to say, just as speakers of a language can comprehend spoken messages, persons who have learned to read can comprehend written messages. Comprehension of spoken and written messages are not entirely independent processes, however.[36]

Fries stated:

> The process of learning to do reading is the process of learning to transfer the already achieved ability to get meanings from talk in a time sequence to a new ability to get the same meanings from seeing representations of this same talk in a direction sequence on a surface.[37]

He further maintained that reading must be bound to the language of the child.[38] Hildreth stated that those words which are most frequently used by the individual in verbal discourse are usually easier to recall in printed form.[39]

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[36] John B. Carroll, "The Analysis of Reading Instruction: Perspectives from Psychology and Linguistics," Theories of Learning and Instruction, ed. E. R. Hilgard (Chicago: Thirty-Sixth Yearbook of the National Society for the Study of Education, 1964), p. 337.

[37] Charles C. Fries, "Linguistic Approaches to First Grade Reading Programs," Perspectives in Reading, ed. James F. Kerfoot (Newark, Delaware: International Reading Association, 1965), p. 48.

[38] Ibid.

[39] Gertrude Hildreth,"Linguistic Factors in Early Reading Instruction," The Reading Teacher, XVIII (December, 1964), 174.

In a study conducted by Giles involving first grade pupils, the children who were taught to read through the language experience approach made significant gains in oral language development as well as in reading development.[40]

McDavid maintained that reading progress is facilitated in proportion to the utilization of the language habits that the student has acquired in oral language.[41] McCullough was in agreement and she stated that if the language in a book in which the child is reading is unlike the language he uses, the reading progress is hindered.[42]

According to Monroe, children must have verbal organizations which are to be correlated with the printed symbol; therefore, language experience would be paramount in learning to read.[43]

Fries also commented that reading ability and reading progress must always be measured against language ability and language progress.[44]

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[40] Douglas Gilbert Giles, "The Effect of Two Approaches to Reading Instruction Upon the Oral Language Development of First Grade Pupils" (unpublished dissertation, North Texas State University, Denton, Texas, 1966).

[41] Raven S. McDavid, Jr., "Dialectology and the Teaching of Reading," The Reading Teacher, XVIII (December, 1964), 207.

[42] Constance McCullough, "Something Better Ahead," The Reading Newsreport, I (April-May, 1967), 22.

[43] Marion Monroe, Children Who Cannot Read (Chicago: The University of Chicago Press, 1967). p. 79.

Interrelatedness of Language Skills

There have been many theories about the interrelationships that exist, or seem to exist, between the different language skills. Several studies have been conducted which indicate relationships between reading abilities and oral language skills.

Swearengen found a high correlation between scores on a psycholinguistics test and scores on a reading achievement test with first grade pupils. She recommended that future investigations examine the nature of the relationship between oral language and reading.[45]

Monroe reported a high correlation between language ability and success in reading of normal children.[46] She said that reading is intimately related to speech and "may be regarded as a parallel system of language which is usually built up from speech."[47] She contended that those children whose facility in the organization of language is limited may become confused in reading even though their vocabularies are adequate.[48]

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[44] Charles C. Fries, "Linguistics and the Teaching of Reading," The Reading Teacher, XVII (May, 1964), 597.

[45] Mary-B Mosley Swearengen, "The Psycholinguistic Abilities of Beginning First-Grade Children and Their Relationship to Reading Achievement" (unpublished Doctor's dissertation, The University of New Mexico, Albuquerque, New Mexico, 1966).

[46] Marion Monroe, Reading Aptitude Tests, manual of directions (Boston: Houghton Mifflin Company, 1935), p. 5.

[47] Monroe, Children Who Cannot Read, p. 79.

Loban found in his study of the language of children in the elementary school that all subjects which he had classified in the low level of language development group were reading "significantly below their chronological age."[49] He stated in his conclusions that children who are below average in either reading, oral language, or writing development are also below average in the other two areas. He further concluded that with average and poor readers, there is no apparent relationship with oral language.[50] He also found that even though a subject who excels in reading also excels in oral language, it does not necessarily follow that poor readers will be poor in oral language.[51]

In his study of fifth grade pupils with IQ ranges from 90 to 110, Hughes found a high correlation between proficiency in one language ability or skill and in other language skills.[52]

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[48] Ibid., p. 109.

[49] Loban, The Language of Elementary School Children, p. 57.

[50] Ibid., pp. 70-71.

[51] Ibid., p. 75.

[52] Virgil H. Hughes, "A Study of the Relationships Among Selected Language Abilities," Journal of Educational Research, XLVII (October, 1953), 105.

Mart found that the quality of the verbal discourse of seventh grade pupils had a significantly lower relationship with overall academic success than with reading and writing ability.[53]

Witty and others maintained that even though language skills seem to be acquired in related manners, that fact does not assure or even imply that there will be equal development of the separate language skills.[54]

It was the contention of Lawson that there actually exists an association between reading and speech development, but that the nature of the relationship is yet obscure. She stated that speech and reading are closely related linguistic processes which entail symbolic formulation, evaluation, and expression.[55]

However, Martin's study dealing with the interrelations among language variables of first grade children suggested that there is little correlation between good oral language ability and success in reading.[56]

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[53] Melvin Mart, "The Relationship Between Achievement and Verbal Communication of Secondary School Children" (unpublished Doctor's dissertation, Columbia University, New York, 1963).

[54] Paul A. Witty, Alma Moore Freeland, and Edith H. Grotberg, The Teaching of Reading (Boston: D. C. Heath and Company, 1966), p. 161.

[55] Lucie I. Lawson, "Language Disorders: The Relationship of Speech Defects and Reading Disabilities," Reading Disorders, eds. Richard M. Flower, et al. (Philadelphia: F. A. Davis Company, 1965), p. 73.

A follow-up of Martin's research was conducted by Winter. Her investigation involved the same children in the second grade which Martin had used in the first grade. Winter's research revealed that patterns of language develop unequally and with only moderate interrelationships.[57]

Houston postulated in her research that not only are language skills interrelated and incorporated into a highly developed system but that the language system itself is only one of many interrelated systems, all developed by the same cognitive mechanism, and all sharing the same major organizational principles. She included the systems of music and mathematics in the larger system to which she referred.[58]

Artley concluded from his review of the research concerning the interrelationships among the language arts that there is a positive relationship between reading and the other language arts.[59]

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[56] Clyde Martin, "Developmental Interrelationships Among Language Variables in Children of the First Grade," Elementary English, XXXII (March, 1955), 70.

[57] Clotilda Winter, "Interrelationships Among Language Variables in Children of the First and Second Grades," Elementary English, XXXIV (1956), 110.

[58] Susan Hilary Houston, "The Acquisition and Operation of Language" (unpublished Doctor's dissertation, Indiana University, Bloomington, Indiana, 1966).

[59] A. Sterl Artley, "Research Concerning Interrelationships Among the Language Arts," Elementary English, XXVII (December, 1950), 35.

Witty came to the conclusion that a study of the nature of language indicates the interrelationships among the language arts. He stated:

> A child learns to speak through listening. Reading is dependent upon speech patterns and a listening vocabulary. Finally, writing is influenced by listening, speaking, and reading vocabularies in addition to speech and reading patterns.[60]

II. LANGUAGE DISORDERS

Many studies supported the theory that language abilities are closely related. Other research has been conducted to determine whether a relationship between a disability in one language skill and disabilities in other language skills actually exists. Vernon pointed out that backwardness in language development may lead to backwardness in reading. He said that one of the important causes of reading disability was retarded development of ability in language expression and comprehension.[61] Although vocabulary was cited as an indication of language ability,[62] Monroe said that vocabulary is not the total factor, because even some children with adequate vocabularies are "unable to organize the relationships of words." Therefore, sentences were meaningless to these children. Such children's use of language was characterized by simple relationships, such as subject-predicate or adjective-noun. The children were unable to use structure words. Dependent clauses created bewilderment in the children.[63] Loban had similar ideas and in his study of children's language he used the amount of subordination as a method for analysis of language development.[64]

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[60] Witty, Freeland, and Grotberg, op. cit., p. 158.

[61] M. D. Vernon, Backwardness in Reading (Cambridge: Cambridge University Press, 1960), p. 70.

[62] Emily Betts Gregors, "A Study of Children's Understanding of Certain Modifying Elements, as Determined by Experimental Tests, and the Relation of Such Understanding to Selected Variables" (unpublished Doctor's dissertation, University of Georgia, Athens, Georgia, 1964).

Rabinovitch identified a broad category of language defects which stem from difficulty in name finding, imprecise articulation and primitive syntax.[65]

Benton thought that some types of reading impairment are more than just lack of reading skills; some types occurred within a setting of general language impairment.[66]

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[63] Monroe, Children Who Cannot Read, p. 100.

[64] Loban, The Language of Elementary School Children, p. 17.

[65] Ralph Rabinovitch, "Dyslexia: Psychiatric Considerations," Reading Disability: Progress and Research Needs in Dyslexia, ed. John Money (Baltimore: The Johns Hopkins Press, 1962), p. 17; Ralph Rabinovitch, "Neuropsychiatric Considerations in Children's Reading Problems," Understanding and Helping the Retarded Reader, ed. Ruth Strang (Tucson: The University of Arizona Press, 1965), p. 50.

[66] Arthur Benton, "Dyslexia: Form Perception and Directional Sense," Reading Disability: Progress and Research Needs in Dyslexia, ed. John Money (Baltimore: The Johns Hopkins Press, 1962), p. 82.

Bateman reported that many children have verbal communication disorders. Children whose comprehension or expressive language problem involved the spoken word were said to have verbal communication disorders.[67] Since both oral reading and speaking are expressive language,[68] it appeared probable that some relationship may exist. In her study of the language of elementary school children, Stickland found that those children who made a low score on oral reading interpretation used a larger proportion of short utterances in the language sample than did those children with high scores in oral reading.[69]

Fries reported that a child is more efficient in understanding language, receptive language control, than he is in producing language, productive language control.[70]

There were a limited number of studies of the behavior of persons with aphasia, the loss of the symbolic significance of an object,[71] in respect to structure words. Goldstein made an extensive report which discussed patients who experience severe difficulty with structure words, even when the patients' use of lexical words is unimpaired. Goldstein attempted to explain the phenomenon by his theory of an impaired abstract attitude in such patients. Many of the aphasic patients with whom he worked could produce the structure words in definite combinations with other words, while some of the patients could neither orally produce nor write structure words.[72] He reported that many brain-damaged aphasics have special difficulty with what he termed "little words" and grammatical endings. Many of the patients improved to the point where they could read aloud most lexical items but no structure words. He even cited the case of an aphasic who was a polyglot and eventually recovered all lexical words but never recovered the structure words in any of the languages which he had mastered.[73]

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[67] Barbara Bateman, "An Over-View of Specific Language Disabilities," *Bulletin of the Orton Society* (Pomfret, Connecticut: The Orton Society, Incorporated, 1965), p. 1.

[68] James A. Fitzgerald and Patricia C. Fitzgerald, *Fundamentals of Reading Instruction* (Milwaukee: The Bruce Publishing Company, 1967), p. 5.

[69] Strickland, "The Language of Elementary School Children: Its Relationship to the Language of Reading Textbooks and the Quality of Reading of Selected Children," p. 73.

[70] Fries, "Linguistic Approaches to First Grade Reading Programs," p. 47.

[71] J. M. Nielsen, *Agnosia, Apraxia, Aphasia: Their Value in Cerebral Localization* (revised edition; New York: Hafner Publishing Company, Incorporated, 1965), p. 17.

Wepman identified two types of language deficiencies. One involved expressive deficiencies which produced difficulties in spoken and written forms of the language. The expressive patients had marked difficulty in using the grammatical parts of speech such as articles, prepositions, and conjunctions. The patients could not use the structure words until long after they had developed a highly useful form of expression. He reported that the return of speech in aphasia follows the pattern 1) nouns, 2) pronouns, 3) verbs except "to be" and "to have" which return to correct usage very late and often serve as function words, 4) adjectives, 5) adverbs, and then 6) structure words, if they ever fully recover.[74]

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[72] Kurt Goldstein, Language and Language Disturbances (New York: Grune and Stratton, Incorporated, 1948), pp. 68-69.

[73] Ibid., p. 144.

Wood reported that aphasia can be either receptive or expressive and involves a limitation in the reception or expression of spoken words. She said that the difficulty was the result of a basic inability to receive stimuli or classify symbols. She also reported the fact that some children with aphasia show no recognized neurological problems in communication.[75]

Gerdine identified two general types of reading disorders which seem to be related to the aphasic symptoms cited. She said that perceptual errors involved perception and associative skills in perception of, transmission of, and response to written materials. Perceptual errors revealed themselves in letter and word reversals, substitutions of small grammatical words, and substitutions of words differing in initial phonetic structure.[76]

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[74] Joseph Wepman, Recovery from Aphasia (New York: Ronald Press Company, 1951), p. 153.

[75] Nancy E. Wood, Language Disorders in Children (Chicago: The National Society for Crippled Children and Adults, Incorporated, 1959), p. 7.

In contradiction to Goldstein's idea of abstract attitude, Jacobsen found that some aphasics, those with similarity disorders, were able to cope adequately with the most abstract words in the language, the structure words. However, he reported that in the syndrome opposite similarity disorders, the patients only retain syntactically independent words and none which show syntactical relationships.[77]

In her study of linguistically handicapped children between the ages 73 to 155 months, Monsees found that the children were marked by use of non-standard grammatical forms in expression and problems in reading. Her research suggested that the problem of linguistically handicapped children is within the area of language disorders which diffuse to pervade oral language production and reading skills.[78]

In agreement with Monsees' theory, Rabinovitch wrote that reading is only one aspect of language function and children who have reading defects tend to show deficiencies in language comprehension and language expression.[79] Lawson identified speech deviations which are coincident to reading disorders as delayed speech development, defects in articulation, cluttering, and stuttering.[80]

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[76] Marjorie Wells Gerdine, "Reading Process Errors and Organic Brain Damage in Dyslexia" (unpublished Doctor's dissertation, Boston University Graduate School, Boston, 1967).

[77] Roman Jacobsen, "Aphasia as a Linguistic Problem," Psycholinguistics: A Book of Readings, eds. Sol Saporta and Jarvis R. Bastain (New York: Holt, Rinehart and Winston, 1961), pp. 424-425.

[78] Edna K. Monsees, "Sequence Factors Related to Problems of Oral Language Production in Linguistically Handicapped Children" (unpublished Doctor's dissertation, The American University, Washington, 1967).

Spache seemed to think that the difficulty in the use of structure words might stem from a differential brain processing of structure words as opposed to lexical words.[81]

The findings of several authors could be summarized in Lawson's statements that there may be a different constellation of deficiencies in language function. "There may be a global involvement, affecting to some degree all forms of language functions."[82]

III. SUMMARY

Several factors were cited which seem to affect language development. Some of the most important of the factors mentioned were environment and experiences involving oral communication.

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[79] Ralph D. Rabinovitch, "Reading Problems in Children: Definitions and Classifications," *Dyslexia: Diagnosis and Treatment of Reading Disorders*, eds. Arthur H. Keeney and Virginia T. Keeney (St. Louis: The C. V. Mosby Company, 1968), p. 9.

[80] Lawson, *op. cit.*, p. 75.

[81] George D. Spache, Professor of Education and Head of Reading Laboratory and Clinic at the University of Florida, lecture, University of Mississippi, November 2, 1967.

[82] Lawson, *op. cit.*, p. 78.

The oral language of children was said to develop from concepts of word meanings, whether concrete or abstract. Several authors explained that children attempt to imitate adult speech of lexical words and omit structure words which are difficult to conceptualize. The theory that there are two independently operating processes in speech, one being the use of words symbolizing concepts and the other being the use of structural forms to produce connected speech, was tested on patients with aphasia. The patients were differentially impaired, either having inability to form concepts for word symbols or having disability in the use of structure words. It was found in a series of studies that a child's capacity to use subordinate clauses or phrases, which are dependent upon their special structure word marker, reflected his language maturity. However, many of the clause markers, phrase markers, and coordinators were often not effectively used until the child was twelve years of age. Even so, some of the same sub-classes of structure words, prepositions and conjunctions, were found to be among the most frequently used parts of speech used by third grade children.

Reading was viewed as a language skill which is closely associated with oral language. In fact, some authors maintained that the language of the child must be reflected in the language of books before a child can adequately cope with reading.

Several authors reported positive correlations between oral language development and reading skills. In fact, some authors viewed reading as a system which is parallel to oral language and which is based upon oral language. One study implied that children who are above average in reading achievement are also above average in oral language skills, although it does not follow that children who are poor readers are also poor with oral language skills. Although many authors observed an association between reading and speech development, none could define the nature of the relationship. Two research studies offered a dissenting view and concluded that patterns of language develop uniquely and have only moderate relationships.

Much of the literature indicated that disabilities in one language skill usually suggest disabilities in another language skill. It was suggested that some types of reading disabilities were reflections of a general language impariment rather than existing as separate entities.

Some studies reported the use of structure words by patients with aphasia. Two reports discussed patients who were unable to use structure words, either in oral language, written expression, or reading, but whose use of lexical words was unimpaired. Some children with aphasia showed no known neurological problems in communication, yet oral language was impaired.

Much of the research on language problems concluded that deficiency in one language skill may permeate other language skills; there may be a connected involvement, affecting all forms of language function.

CHAPTER III

THE RESEARCH PROCEDURE

The following plan was employed for the investigation.

A review of related literature was made prior to the initiation of the investigation so that all available ideas and previous techniques could be employed in the study.

I. PURPOSE AND HYPOTHESIS

The investigation was intended to answer the question of whether children who experience difficulty in the oral reading of structure words will also experience difficulty with structure words in their verbal discourse.

The general question was transformed into a hypothesis which was negatively stated. The hypothesis for the investigation is as follows.

The use of structure words in the verbal discourse of children who experience difficulty in the oral reading of structure words, as determined by a screening device for oral reading, will not differ significantly from the use of structure words in the verbal discourse of children who do not experience difficulty in the oral reading of structure words, as determined by a screening device for oral reading.

II. STATISTICAL BASIS FOR COMPARISON

Since the design required that there be a test of the significance of the difference between the mean ratio of structure word errors in the verbal discourse of the two independent groups, a t test was used to test the significance of the differences. The t test was cited for use for testing the significance of the difference between the means of two independent groups.[1]

Formula for t Test[2]

$$\underline{t} = \frac{M_1 - M_2}{\sqrt{\left(\frac{\Sigma x^2 + \Sigma y^2}{N_1 + N_2 - 2}\right)\left(\frac{N_1 + N_2}{N_1 N_2}\right)}}$$

The above formula for the t test was chosen because it "gives a more exact estimate of the standard error of the difference between means particularly when the groups are small."[3]

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[1] David R. Cook, A Guide to Educational Research (Boston: Allyn and Bacon, Inc., 1965), p. 98; Armand J. Galfo and Earl Miller, Interpreting Education Research (Dubuque, Iowa: Wm. C. Brown Company, 1965), p. 165; Robert H. Koenker, Simplified Statistics (Bloomington, Illinois: McKnight and McKnight Publishing Company, 1961), p. 87; Murray R. Spiegel, Theory and Problems of Statistics (New York: Schaum Publishing Company, 1961), p. 109.

[2] Koenker, op. cit., p. 88.

Decision Theory

The following rules for decision were used to accept or reject the hypothesis.

1. Reject the hypothesis at the .05 level of significance if the $\underline{t}$ score is less than the .05 level of probability; that is, if the $\underline{t}$ score is less than 2.00.
2. Accept the hypothesis except under conditions noted in number 1.

III. PILOT STUDY

Since the experiment required that a distinction be made between children who were having profound difficulty in the use of structure words in oral reading and children whose oral reading of structure words did not exhibit such obvious difficulties, a screening device was developed from a passage chosen from the Scott, Foresman and Company basal reader series. This series was adopted by the Lafayette County, Mississippi, school systems and was currently in use in the elementary schools of that county. The selection chosen for the screening device for oral reading was obtained from the central portion of the second of the fourth readers, More Times and Places, and consisted of 509 words. The selection contained a total of 180 structure words or 35 per cent of the total words in the selection.

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[3] Ibid.

In order to establish criteria for determining which children did and which did not have obvious difficulty in oral reading of structure words, a pilot study was initiated in three counties adjacent to Lafayette County. In the elementary schools of the three counties in which the pilot study was conducted, all fourth grade pupils were administered the screening device which required that each pupil read the selection orally at sight while the examiner noted all difficulties in oral reading of both structure words and lexical words. The structure word errors were listed as the per cent of structure word errors made in the screening device for oral reading to the total number of structure words contained in the device.

The following criteria were established for the screening device for oral reading. All children whose structure word errors ranged from .5 per cent level to 6 per cent level inclusively were considered to be lacking in profound difficulty in the oral reading of structure words. Those children whose structure word errors ranged from 7 per cent to 25 per cent inclusively were considered to have profound difficulty in the oral reading of structure words. The 25 per cent level of structure word errors was the highest level of errors recorded in the pilot study, and the .5 per cent level of structure word errors was the lowest level recorded.

The results of the pilot study established the criteria for use with the screening device for oral reading of structure words and it served as the standard for division of the children into the two groups.

IV. THE RESEARCH POPULATION

The research population for the investigation was selected from 246 fourth grade pupils from selected public elementary schools in Lafayette County, Mississippi.

The population from the described schools was chosen according to the following criteria.

1. All pupils were within the normal range of intelligence which was considered to fall within the IQ range of 90 to 110 according to the Otis-Lennon Mental Ability Test, Elementary II Level, Form J.
2. No pupil had ever been either prematurely promoted or retained.
3. All pupils had satisfactorily completed speech, hearing, and vision tests and none had articulatory defects which would interfere with the results of the investigation.
4. No pupil had noticeable physical handicaps and all seemed to be healthy.

5. In keeping with the economic standards of Lafayette County, Mississippi, the pupils were predominantly from lower middle-class families, as indicated by personal data contained in cumulative records housed in the separate elementary schools.

After each criterion had been applied to each pupil, 85 students had been selected.

V. FORMATION OF GROUPS

On the basis of the results of the screening device for oral reading, the 85 students who met the characteristics already mentioned were divided into two groups.

The members of Group A were those students who had been screened by the oral reading device and had made from 7 per cent to 25 per cent of errors in the oral reading of structure words. The members of Group A were considered to have profound difficulty with oral reading of structure words.

Those pupils who made fewer than the 7 per cent level of errors in the oral reading of structure words on the screening device became members of Group B. The students in Group B were not considered to have profound difficulty with oral reading of structure words.

The median number of children ranked at the 6 per cent level of errors in oral reading of structure words. Fifteen pupils ranked at the 6 per cent level of errors, and these pupils were excluded from the investigation population. By excluding the 6 per cent range of errors, the researcher was enabled to prevent any child from being classified in either Group A or Group B on the basis of one structure word error per 100 structure words; therefore, the two groups were separated by at least a 2 per cent level of structure word errors in oral reading.

After the screening device for oral reading had been administered to all pupils, Group A had 36 members and Group B had 34 members.

VI. VARIABLES

The following variables were controlled during the investigation.

In order to control dialectal variations in pronunciations of particular words and in verbal discourse patterns, the investigation was limited to the geographical boundaries of Lafayette County, Mississippi. It was assumed that the same or very similar dialectal speech would be prevalent within the described boundary. Also, since there was evidence to indicate that language proficiency may be environmentally determined,[4] the described geographical boundaries necessarily limited the environmental factor.

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[4] Walter Loban, "Oral Language Proficiency Affects Reading and Writing," Issues and Innovations in the Teaching of Reading, ed. Joe L. Frost (Glenview, Illinois: Scott, Foresman and Company, 1967), p. 17.

Fourth grade pupils were used exclusively because most structure words are sight words, those words which pupils can automatically and instantly recognize without additional word attack skills, and most sight words have been mastered by most fourth grade students.[5] Furthermore, Smith maintained that children do not move from the "perceptual level to the conceptual level" of language, especially reading, until the fourth grade.[6] Structure word proficiency requires conceptual language ability; therefore, a child who had not reached the conceptual level of language would be handicapped and the investigation impaired. Fourth grade students were chosen for the additional reason that Goldstein maintained that during the eight to ten year age range, children develop security in their speech abilities,[7] and such security would seem to enhance the study.

The economic status of the families of pupils chosen for study was limited because economic status affects language development[8] and proficiency in language.[9]

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[5] Edward W. Dolch, Psychology and Teaching of Reading (Champaign, Illinois: Garrard Press, 1951), p. 83.

[6] Donald E. Smith, "A New Theory of the Psychological Basis of Reading Disability," Reading for Effective Living, ed. J. Allen Figurel (New York: International Reading Association, 1958), p. 120.

[7] Miriam B. Goldstein, The Teaching of Language in Our Schools (New York: Macmillan Company, 1966), p. 41.

The intelligence range was limited to 90 to 110 IQ because intelligence has been shown to be a factor in proficiency in language.[10] Hildreth suggested that mastery of language is one of the most reliable indications of general competence; therefore, the mentally deficient child would have deficient language, while the intellectually gifted child would exhibit proficiency in language.[11] In order that neither the child who was likely to have deficient language facility nor the child who was likely to have mastery and competence in language skills would participate in the investigation, intelligence was limited to the normal range of from 90 to 110 IQ.

Since either premature promotion or retention would place children who had been either retained or prematurely promoted in a different age range from the remainder of the fourth grade children, these children were excluded from the study. The research of Loban concluded that age is related to language development;[12] therefore, it was necessary to keep the age factor under control.

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[8] Dominic Richard Thomas, "Oral Language Sentence Structure and Vocabulary of Kindergarten Children Living in Low Socio-Economic Urban Areas" (unpublished Doctor's dissertation, Wayne State University, Detroit, 1962).

[9] Cornelia Christie Eldredge, "A Study of the Relationship Between the Oral and Written Composition of Third Grade Children" (unpublished Doctor's dissertation, University of Georgia, Athens, 1965).

[10] *Ibid*.

[11] Gertrude Hildreth, "Linguistic Factors in Early Reading Instruction," *The Reading Teacher*, XVIII (December, 1964), 175.

Since adequate vision and hearing were assumed to be necessary for reading proficiency, only children who according to student health records had passed tests of vision and hearing were used for the investigation. It was also assumed that physical handicaps or malfunctions could have effects on reading ability and oral language ability. Consequently, physical anomalies were controlled by excluding from the investigation all subjects who manifested such conditions, according to student health records and personal observations.

Articulatory defects have been cited as being coincident with reading disorders;[13] therefore, defective articulation was controlled in the study by excluding all children with such defects.

Several factors prevented the control of achievement as a variable. Although there has been some evidence to indicate that there exists a relationship between reading ability and arithmetic computation ability,[14] achievement in arithmetic computation could not be used to control achievement because of the research which indicated that abstract verbal ability and ability in reading comprehension are important factors in determining success in arithmetic computation.[15] The relationship between reading scores and arithmetic reasoning scores has been demonstrated to be statistically significant.[16] However, other research revealed that the system of language shares the same organizing principles which are developed by the same cognitive mechanisms as the systems of music and of mathematics.[17] It was impossible to use achievement in language arts because there is an indicated correlation between language ability and success in reading.[18] By screening out children with low achievement scores in language abilities. those children who would probably exhibit difficulty in oral reading of structure words would also be eliminated.

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[12] Walter D. Loban, The Language of Elementary School Children (Research Report No. 1; Champaign, Illinois: National Council of Teachers of English, 1963), p. 82.

[13] Lucie I. Lawson, "Language Disorders: The Relationship of Speech Defects and Reading Disabilities," Reading Disorders, ed. Richard M. Flower, et al. (Philadelphia: F. A. Davis Company, 1965), p. 75.

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[14] Marion Monroe, Reading Aptitude Tests, manual of directions (Boston: Houghton Mifflin Company, 1935), p. 5.

[15] Marion Doughty Martin, "Reading Comprehension, Abstract Verbal Reasoning, and Computation as Factors in Arithmetic Problem Solving" (unpublished Doctor's dissertation, State University of Iowa, Ames, Iowa, 1963).

[16] R. J. C. Harper, "Reading and Arithmetic Reasoning: A Partial Correlation and Multiple Regression Analysis," Alberta Journal of Educational Research, III (June, 1957), 85.

[17] Susan Hilary Houston, "The Acquisition and Operation of Language" (unpublished Doctor's dissertation, Indiana University, Bloomington, Indiana, 1966).

[18] Monroe, loc. cit.

VII. ADMINISTRATION OF SCREENING DEVICE FOR ORAL READING

Each pupil was tested individually in a well-lighted, spacious, well-ventilated, and comfortable classroom which was not in use and which was free from extraneous noise and other distracting factors. The pupils were familiar with the environment.

The pupils were called in from their own classrooms individually, and after a short period in which rapport was established, each pupil was asked to read the printed selection orally at sight. The examiner recorded all errors on a specially prepared copy of the selection, the cover of which contained all pertinent data for each pupil. The front sheet served as each pupil's personal record for the investigation. A sample of both the student copy and examiner copy is contained in the appendix. The following are the types of errors which were recorded by the examiner.

Type Error	Rule and Symbol	Example
Substitution	Cross out the printed word and write in the substituted word.	toy the ~~boy~~ is

Type Error	Rule and Symbol	Example
Reversal	Mark reversals of words or part of a word by curved lines.	was or this is
Repetition	Draw a heavy line beneath the word or words repeated. Use a separate line for each time the word is repeated and score one error for each repetition.	the car was
Insertion or Addition	Show insertion or addition of words by ∧ with the word written above. Count each word inserted as a separate error.	tall the ∧ boy
Omission	Encircle the word, words, or parts of words omitted. Count each omission as an error.	number of words
Mispronunciation	Draw a wavy line beneath the mispronounced word. Write the child's pronunciation, using phonetic spelling, above each word mispronounced.	blɪnt bent
Aided Words	After a pause of approximately five seconds, a hesitation is counted as an error. Pronounce the word for the student and place a check over the word pronounced.	✓ he wandered

Chapter I of the report contains a definition of the types of errors. The types of errors and the respective marking system utilized some elements of those systems devised by authorities.[19]

The following is an illustration of how the marking system was used.

which
War Paint was a wild colt ~~whose~~ spotted hide
looked as if brushfuls of paint had been spilled
of
all over it. With a herd of wild horses, he
board
✓
wandered over the broad western plains as free as
the wind.

VIII. COLLECTION OF DATA

Since one of the prime objectives of the investigation was to note the use of structure words in the verbal discourse of both Group A and Group B, a device for preserving the verbal discourse of each pupil was employed. Use of a magnetic tape and recorder seemed to be the best and least expensive device available to achieve the goal.[20] The taped recordings were made in a school environment with which the pupils were familiar, the same environment in which the pupils had been administered the screening device for oral reading. Sufficient verbal discourse was recorded to insure a usable sample from each child. In most instances, from five to ten minutes recording time accomplished the task.

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[19] Donald D. Durrell, *Durrell Analysis of Reading Difficulty*, manual of directions (New York: Harcourt, Brace and World, Inc., 1955), pp. 8-9; John V. Gilmore, *Gilmore Oral Reading Test*, manual of directions (New York: Harcourt, Brace and World, Inc., 1952), pp. 8-9; William S. Gray, *Gray Oral Reading Tests*, manual of directions (New York: Bobbs-Merrill Company, 1967), pp. 5-6; George D. Spache, *Diagnostic Reading Scales*, manual of directions (Monterey, California: California Test Bureau, 1963), p. 27.

[20] Ruth G. Strickland, "The Language of Elementary School Children: Its Relationship to the Language of Reading Textbooks and the Quality of Reading of Selected Children," *Bulletin of the School of Education, Indiana University*, XXXVIII (July, 1962), 10.

Procuring the Language Sample

Each student was interviewed individually and his verbal discourse recorded. Each student was seated at a table displaying the tape recorder and large cardboard storybook characters. The children were told that the researcher was testing the tape recorder to determine how efficient it was in reproducing various voices, since it was suspected that many of the students would not be familiar with tape recorders and might experience anxiety about being recorded for other purposes.

Methods of motivating verbal discourse were similar to those used by Strickland in her study of children's language.[21] The children were encouraged to talk about themselves, their families, their friends, their pets, or any other topic of interest to them. Storybook characters served as primers whenever conversation ebbed.

A hierarchy of questions was used to stimulate conversation.

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[21] *Ibid.*, p. 15.

1. Can you tell about the most exciting thing which has ever happened to you, your family, or your friends?
2. What kind of pets do you have and what can they do?
3. Can you tell me your favorite story?

Further questions or comments were used only to the extent necessary to encourage a waning flow of verbal discourse. The recording continued until an adequate sample of verbal discourse was procured for each pupil. An adequate sample of verbal discourse was considered to consist of approximately the same number of words as was contained in the screening device for oral reading (509).

Preparing and Processing the Verbal Discourse Samples

The taped verbal discourse sample of each student was transcribed into typewritten form to facilitate analysis. Extreme caution was exerted to insure accuracy in the transcription.

The typewritten transcriptions were then processed for errors in the use of structure words. The same symbols and rules applied to the errors in verbal discourse as applied to the screening device for oral reading. A panel of three second-year graduate students who have had experience in teaching English and who had successfully completed at least 12 semester hours of graduate courses in English and linguistics were used to compare markings of structure word errors in the transcribed verbal discourse. Each panel member was provided with a copy of the criteria for evaluating transcribed verbal discourse and a copy of the marking system for recording errors. Six transcriptions were randomly selected from both Group A and Group B. Each panel member was asked to evaluate all of the randomly selected transcriptions from Group A and from Group B according to the evaluative criteria. Then, each of the six transcriptions which was evaluated by panel members was compared to the evaluation of the same transcription made by the researcher and by the other panel members. It was found through observation that the errors recorded by the panel members and the investigator were either the same or differed by a single error for each transcription. Since the total number of structure words in each transcription was greater than 100, the difference was less than 1 per cent and was considered to be insignificant. The panel served to validify the objectivity of the evaluation of the transcriptions by the research conductor.

A linguistics specialist served as consultant to verify the errors analyzed in the transcriptions. The final decision on the structure word errors in the transcribed verbal discourse of each pupil rested with the investigator.

The decision on errors in the use of structure words in verbal discourse was in keeping with the definition of structure words in Chapter I, and with the chapters on function words in American English Grammar by Charles Carpenter Fries, which was used as a constant reference.[22]

After all errors had been properly marked in the verbal discourse transcriptions, the ratio of the number of structure word errors made to the total number of structure words used in the verbal discourse was computed for each child.

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[22] Charles Carpenter Fries, American English Grammar (New York: Appleton-Century-Crofts, Inc., 1940), pp. 72-246.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The purpose of the chapter is to present the data obtained through the procedure outlined in the preceding chapter. The first section of the chapter pertains to the population to which the criteria discussed in Chapter III were applied. Another section of the chapter is allotted to the results of the administration of the screening device for oral reading. The results of the recordings of verbal discourse are also discussed in the chapter. The last section discusses the application of the statistics to the described data.

I. THE POPULATION

The population was procured from 246 children from eight sections of fourth grade in the selected elementary schools in Lafayette County, Mississippi. The Otis-Lennon Mental Ability Test was administered to all 246 fourth grade pupils. Only those pupils whose IQ range was from 90 to 110 were used. The fourth graders were further screened for speech problems, physical handicaps, high of low socio-economic status, transfers from other counties or states, retentions in one or more grades, premature promotions and absenteeism. Table I, Distribution of Population According to Criteria for

TABLE I

DISTRIBUTION OF POPULATION ACCORDING TO CRITERIA FOR SELECTION

Code for School and Section	No. of Pupils	No. in IQ 90-110	Absentees	Transfers	Speech Problems	Premature Promotions	Retentions	Socio-Economic Status	Total After Screening	No. at .06 Level	Total No. Used
04A	32	13	1	0	0	0	2	1	9	2	7
04B	30	12	1	0	0	0	2	1	8	0	8
04C	30	17	0	1	1	0	3	0	12	2	10
04D	31	18	0	1	1	0	2	2	12	3	9
04E	31	22	2	1	1	0	2	3	13	0	13
Total	154	82	4	3	3	0	11	7	54	7	47
L4A	30	15	0	0	1	0	3	1	10	4	6
L4B	31	22	0	1	4	0	3	0	14	1	13
L4C	31	13	1	0	0	0	3	2	7	3	4
Total	92	50	1	1	5	0	9	3	31	8	23
Grand Total	246	132	5	4	8	0	20	10	85	15	70

Selection, indicates the number of students screened out according to each separate criterion. The table shows that IQ scores caused the greatest number of students to be excluded from the investigation. Retentions in one or more grades also caused several students to be excluded, as did a socio-economic status which was either too high or too low. The number of students excluded because of speech problems was very small. There were only four transfers from other counties or states, indicating that the population of the selected schools is relatively stable. Because of chronic absenteeism, five students were given no test other than the Otis-Lennon Mental Ability Test. No student had been prematurely promoted, and none had other handicaps which might interfere with the results of the research.

After each criterion had been applied, 85 pupils remained for further study. Those pupils who had an error score of 6 per cent were excluded as explained in Chapter III. Since there were 15 students who scored at the 6 per cent level of errors, 70 students were used for recordings of verbal discourse samples. Of the 70 students, 31 were boys and 39 were girls.

II. RESULTS OF SCREENING DEVICE FOR ORAL READING

The results of the screening device for oral reading administered to the 85 fourth grade pupils who had met the predetermined criteria served as the basis for dividing the pupils into two groups.

Group A

Group A included those pupils who had scored errors on from 7 per cent to 21 per cent of the 180 structure words in the screening device for oral reading. The students in Group A were considered to have profound difficulty in the oral reading of structure words. The mean percentage of errors for the group was 11 per cent. Table II, Frequency Distribution of the Percentage of Structure Word Errors Made in Oral Reading by Groups, demonstrates the range of errors in percentages, the frequency of the distribution of errors, and the standard deviation of errors.

Group A contained 36 children whose mean IQ was 102, as indicated in Table III, Frequency Distribution of Intelligence Test Scores by Groups. The table presents the frequency distribution of IQ scores between 90 and 110.

The mean chronological age for Group A was nine years seven months, as presented in Table IV, Frequency Distribution of Chronological Ages by Groups. Group A had a mean mental age of nine years nine months as demonstrated by Table V, Frequency Distribution of Mental Ages by Groups. Group A consisted of 18 boys and 18 girls, as presented in Table VI, Number and Percentage of Boys and Girls by Groups.

TABLE II

FREQUENCY DISTRIBUTION OF THE PERCENTAGE OF STRUCTURE WORD ERRORS MADE IN ORAL READING BY GROUPS

Percentage of Errors	Group A*	Group B**
.21	1	
.19	1	
.18	1	
.17	2	
.16	2	
.15	1	
.14	2	
.13	2	
.12	1	
.11	4	
.10	1	
.09	7	
.08	3	
.07	8	
.05		3
.04		7
.03		11
.02		11
.01		2
Total	36	34
Mean	.11	.03
Range	.07-.21	.01-.05
Standard Deviation	3.90	1.06

*Group A was considered to have difficulty in the oral reading of structure words, as determined by the screening device for oral reading.

**Group B was considered to be lacking in difficulty in the oral reading of structure words, as determined by the screen device for oral reading.

TABLE III

FREQUENCY DISTRIBUTION OF INTELLIGENCE TEST SCORES* BY GROUPS

IQ	Group A	Group B
110	5	7
109	3	0
108	1	3
107	0	2
106	2	0
105	3	0
104	3	4
103	3	1
102	1	3
101	1	3
99	2	2
98	2	3
97	3	2
96	0	1
95	2	0
94	3	0
93	0	0
92	1	1
91	0	1
90	0	0
Total	36	34
Mean	102	102
Range	92-110	91-110
Standard Deviation	5.52	5.33

*IQ scores were determined by the Otis-Lennon Mental Ability Test, Elementary II Level, Form J.

TABLE IV

FREQUENCY DISTRIBUTION OF CHRONOLOGICAL AGES BY GROUPS

CA	Group A	Group B
10.5	1	0
10.4	1	0
10.3	0	2
10.2	0	1
10.1	3	4
10.0	3	1
9.11	7	2
9.10	2	2
9.9	3	3
9.8	0	2
9.7	3	2
9.6	0	3
9.5	4	3
9.4	2	6
9.3	4	2
9.2	3	1
Number	36	34
Mean	9.7	9.7
Range	9.2-10.5	9.2-10.3
Standard Deviation	4.34	3.97

TABLE V

FREQUENCY DISTRIBUTION OF MENTAL AGES BY GROUPS

MA	Group A	Group B
12.5	1	0
12.3	1	0
11.6	1	2
11.2	1	1
11.1	0	2
10.9	0	1
10.8	2	2
10.7	5	1
10.3	2	2
10.2	0	3
10.1	5	4
10.0	2	2
9.9	0	3
9.8	0	1
9.7	3	2
9.4	0	1
9.3	1	1
9.2	3	3
9.1	2	1
9.0	4	0
8.7	2	0
8.6	0	1
8.5	0	1
8.3	1	0
Total	36	34
Mean	9.9	10.0
Range	8.3-12.5	8.5-12.5
Standard Deviation	.665	.888

TABLE VI

NUMBER AND PERCENTAGE OF BOYS AND GIRLS BY GROUPS

Pupils	Group A		Group B		Total	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Boys	18	50	13	38	31	44
Girls	18	50	21	62	39	56
Total	36	100	34	100	70	100

Group B

Group B included those pupils who had structure word error scores on the screening device for oral reading in the range from 1 per cent to 5 per cent of the total number of structure words. The group had a mean of 3 per cent structure word errors in the oral reading. The frequency distribution of errors is presented in Table II.

Group B contained 34 members whose mean IQ was 102, as presented in Table III, Frequency Distribution of Intelligence Test Scores by Groups. Table IV, Frequency Distribution of Chronological Ages by Groups, shows the mean chronological age of nine years seven months and the frequency distribution of chronological ages. The mean mental age for Group B, ten years no months, is included in Table V, Frequency Distribution of Mental Ages by Groups. Group B consisted of 13 boys and 21 girls, as presented in Table VI.

Interpretation of Data for Both Groups

The mean intelligence scores for both groups were the same, indicating that the factor of intelligence was well controlled and in accord with the assigned criterion. Both groups also had the same mean chronological age, indicating that even if chronological age is a factor in language behavior, neither group was at a disadvantage. There was a slight difference in the mean mental age of nine years nine months for Group A and ten years no months for Group B. The significance of the difference between the mean scores for intelligence, chronological age, and mental age was determined through a $\underline{t}$ test. The results of the $\underline{t}$ test concluded that there was no significant difference between the mean scores on the above mentioned factors. A difference of 8 per cent structure word errors separated the mean errors of 11 per cent for Group A and 3 per cent for Group B. However, this was the factor upon which the group division was based and a difference in scores was necessary. A $\underline{t}$ test was applied to the error scores and it was found that the difference between the two mean scores was significant at the .05 level.

Although achievement was a variable which was not controlled for the investigation, it was of interest to note achievement scores of both groups in paragraph meaning and in arithmetic computation since it was suspected that Group A would be below Group B in achievement in the two areas mentioned. Table VII, Frequency Distribution of Achievement Scores for Paragraph Meaning by Groups, illustrates that 3.7 was the mean achievement score on paragraph meaning for Group A. Group B had a mean score of 3.9 in paragraph meaning. Therefore, there was a difference of two months in the mean achievement between the two groups in paragraph meaning, with Group B having the higher mean score. However, the results of a $\underline{t}$ test

TABLE VII

FREQUENCY DISTRIBUTION OF ACHIEVEMENT SCORES* FOR PARAGRAPH MEANING BY GROUPS

Scores for Paragraph Meaning	Group A	Group B
6.9	1	0
6.0	0	1
5.7	0	1
5.4	0	1
5.3	2	0
5.0	1	0
4.8	0	1
4.7	0	1
4.6	0	1
4.4	1	1
4.3	0	3
4.2	0	1
4.1	2	1
4.0	3	5
3.9	3	1
3.8	1	2
3.7	1	1
3.6	3	2
3.5	1	1
3.4	2	1
3.3	3	1
3.2	4	1
3.1	1	0
3.0	3	2
2.9	1	2
2.8	0	1
2.7	1	0
2.6	1	0
2.5	0	1
2.4	1	1
Total	36	34
Mean	3.7	3.9
Range	2.4-6.9	2.4-6.0
Standard Deviation	.855	1.07

*Stanford Achievement Test, Intermediate I, Form W, was administered in May, 1967.

revealed that there was no significant difference between the two mean scores for paragraph meaning. The achievement score in arithmetic computation is presented in Table VIII, Frequency Distribution of Achievement Scores for Arithmetic Computation by Groups. The mean achievement score in arithmetic computation for Group A, 4.2, and the mean achievement score in arithmetic computation for Group B, 4.0, differed by two months in favor of Group A. When a t test was applied to the data, the results revealed no significant difference between the mean scores for arithmetic computation.

Table IX, Summary of Range, Mean, and Standard Deviation for Pertinent Data by Groups, presents the ranges of scores, mean scores, and standard deviations of scores for pertinent data collected for each group.

Characteristics of Both Groups in the Oral Reading of Structure Words

Several generalizations were made concerning the oral reading of structure words by members of each group.

The oral reading of the structure words in the screening device by members of Group A was characterized by specific types of errors. The greatest number of errors recorded was repetitions of structure words in general. Substitution errors involved substitutions of one structure word for another; and in most cases, the substitution changed the meaning of the entire sentence. The most frequently substituted sub-classes

TABLE VIII

FREQUENCY DISTRIBUTION OF ACHIEVEMENT SCORES* FOR ARITHMETIC COMPUTATION BY GROUPS

Scores for Arithmetic Computation	Group A	Group B
5.6	1	0
5.5	1	0
5.2	1	0
5.0	1	1
4.9	1	2
4.8	1	2
4.7	2	0
4.6	5	1
4.5	0	1
4.4	0	2
4.3	8	4
4.2	3	1
4.1	2	1
4.0	0	2
3.9	1	0
3.8	0	2
3.7	1	3
3.6	1	3
3.5	0	2
3.4	0	1
3.3	0	3
3.2	2	1
3.1	1	0
3.0	1	0
2.9	0	1
2.3	0	1
2.2	2	0
1.7	1	0
Total	36	34
Mean	4.2	4.0
Range	1.7-5.6	2.3-5.0
Standard Deviation	.868	.621

*Stanford Achievement Test, Intermediate I, Form W, was administered in May, 1967.

TABLE IX

SUMMARY OF RANGE, MEAN, AND STANDARD DEVIATION FOR PERTINENT DATA BY GROUPS

	Group A			Group B		
	Range	Mean	SD	Range	Mean	SD
CA	9.2-10.5	9.7	4.34	9.2-10.3	9.7	3.97
MA	8.3-12.5	9.9	.665	8.6-12.5	10.0	.888
IQ	9.2-11.0	102	5.52	9.1-11.0	102	5.33
PM	2.4- 6.9	3.7	.855	2.4- 6.0	3.9	1.07
AC	1.7- 5.6	4.2	.868	2.3- 5.0	4.0	.621
SW	.07- .21	.11*	3.90	.01- 0.5	.03*	1.06

CA = Chronological Age in Years and Months
MA = Mental Age in Years and Months
IQ = Intelligence Quotient
PM = Paragraph Meaning
AC = Arithmetic Computation
SW = Structure Word Errors in Percentages
SD = Standard Deviation

*A t test revealed that the difference between the two means was significant.

were phrase markers and markers of dependent clauses, the subordinating conjunctions. Most of the insertion errors included prepositions, especially on, to, and of. The most frequent omission errors were with inflectional endings of possessives of names and of common nouns, and with prepositions, particularly with and to.

The most frequent errors in oral reading recorded for Group B were omissions of articles. The oral reading of the selection by Group B also was marked by the omission of possessive pronouns and the substitution of articles for demonstratives. Not only was Group B superior to Group A, as evidenced by the lower percentage of structure word errors in the oral reading, but Group B generally seemed to have better intonational patterns and pitch contours than did Group A.

III. RESULTS FOR VERBAL DISCOURSE

Group A

An analysis of the transcriptions of verbal discourse for Group A revealed that the errors, computed as the ratio of structure word errors to total number of structure words used in the transcribed verbal discourse, ranged from .8 to .20. The mean ratio of structure word errors made to total number of structure words used was .13. Table X, Frequency Distribution of Ratio of Structure Word Errors to Total Number of

TABLE X

FREQUENCY DISTRIBUTION OF RATIO OF STRUCTURE WORD ERRORS TO TOTAL NUMBER OF STRUCTURE WORDS USED IN VERBAL DISCOURSE BY GROUPS

Ratio of SW Errors	Group A	Group B
.20	1	
.19	1	
.18	3	
.16	2	
.15	3	3
.14	5	5
.13	4	3
.12	5	5
.11	2	2
.10	3	4
.09	5	5
.08	2	3
.07		3
Total	36	34
Mean	.13	.11
Range	.20-.08	.15-.07
Standard Deviation	.100	.078

Structure Words Used in Verbal Discourse by Groups, illustrates the range of error scores, the mean error scores presented as the ratio of the number of structure word errors in verbal discourse to the total number of structure words used, and the standard deviations of scores for Group A.

Group B

Group B made a mean ratio of .11 structure word errors in their verbal discourse. The errors were computed as the ratio of the structure word errors made to the total number of structure words used in the verbal discourse sample. The errors ranged from a ratio of .7 to a ratio of .15, as presented in Table X, Frequency Distribution of Ratio of Structure Word Errors to Total Number of Structure Words Used in Verbal Discourse by Groups.

Characteristics of the Verbal Discourse by Both Groups

Generally, Group A used relatively fewer structure words in their verbal discourse than did Group B. Group A used 4,208 structure words in verbal discourse, with an average of 117 structure words per transcription. Group B used 4,342 structure words with an average of 128 structure words per transcription.

The verbal discourse of both groups was marked by a total absence of introducers of affirmation or negation. There were also very few question markers used by either group, and both groups used relatively few proposers. Although Group A used more expletives than did Group B, neither group used the subclass widely.

Coordinators were used extensively by both groups, but Group A used more coordinators than did Group B. The coordinators most frequently used were usually employed to join items which were equal in logical importance rather than to join clauses; however, the coordinate conjunction and was often used to join statements which seldom seemed to require grammatical connection, since many were "run-on" sentences.

Every transcription contained at least one conversation starter, with well and now being those most frequently used by both groups.

Phrase markers were used more frequently by Group B. Group B also used more noun markers than did Group A.

The per cent of structure words used by each group is presented according to each subclass in Table XI, Subclasses of Structure Words Used and Structure Word Errors Made in Percentages for Verbal Discourse by Groups.

Most of the structure word errors in the verbal discourse of each group involved coordinators; and Group A had a higher percentage of coordinator errors. Group A made no errors with pre-determiners, post determiners, adjective and adverb markers, conversation starters, proposers, or expletives, although these subclasses of structure words were included in their verbal discourse samples. The group used very few modal auxiliaries, but they used other auxiliaries frequently.

Group B made no errors involving pre-determiners, post-determiners, modal auxiliaries, adjective and adverb markers, relative pronouns, question markers, conversation starters, or expletives, even though the subclasses were used in their verbal discourse samples. They frequently made errors with determiners and coordinators, however.

The per cent of structure word errors made by each group is given in Table XI. The per cent used column represents the per cent of the total structure words used in verbal discourse that belonged to each of the subclasses listed. The column for per cent of errors represents the per cent of the total structure words misused in verbal discourse that belonged to each of the subclasses of structure words listed.

IV. TESTING THE HYPOTHESIS

Two groups were formed from the population that met the established criteria on the basis of their performance in the oral reading of structure words on the screening device for oral reading. Group A consisted of those children who were considered to have profound difficulty in the oral reading of structure words as evidenced through their performance on the

TABLE XI

SUBCLASSES OF STRUCTURE WORDS USED AND STRUCTURE WORD ERRORS MADE IN PERCENTAGES FOR VERBAL DISCOURSE BY GROUPS

Subclass	Group A Per Cent of Total Used	Group A Per Cent of Total Errors	Group B Per Cent of Total Used	Group B Per Cent of Total Errors
Noun Marker				
Pre-determiner	.01	.00	.01	.00
Determiner	.26	.22	.26	.28
Post-determiner	.03	.00	.05	.00
Verb Marker				
Modal Auxiliary	.02	.00	.01	.00
Auxiliary	.06	.03	.08	.06
Phrase Marker	.20	.08	.23	.09
Adjective and Adverb Marker	.01	.00	.02	.00
Clause Marker				
Subordinate conj.	.04	.04	.04	.04
Relative pronoun	.01	.01	.01	.00
Coordinator	.31	.61	.25	.50
Question Marker	.00	.00	.00	.00
Conversation Starter	.01	.00	.01	.00
Negative	.03	.01	.03	.03
Proposer	.00	.00	.00	.00
Expletive	.01	.00	.00	.00
Introducer	.00	.00	.00	.00
Total	100	100	100	100

screening device for oral reading. Group B involved those children who were considered to be lacking in profound difficulty in the oral reading of structure words as determined by their performance on the screening device for oral reading. Verbal discourse samples were collected for each group, and the ratio of the number of structure word errors made to the total number of structure words used was determined for each child. The data were collected in order to test the general hypothesis that the use of structure words in the verbal discourse of children who experience difficulty in the oral reading of structure words will not differ significantly from the use of structure words in the verbal discourse of children who do not experience difficulty in the oral reading of structure words.

Significance at the .05 level was chosen as the basis needed to reject the null hypothesis.

The formula for the $\underline{t}$ test which was used to determine the significance of the difference between the two mean ratios of structure word errors in verbal discourse of the two groups is as follows.

Formula:

$$\underline{t} = \frac{M_1 - M_2}{\sqrt{\left(\frac{\Sigma x^2 + \Sigma y^2}{N_1 + N_2 - 2}\right)\left(\frac{N_1 + N_2}{N_1 N_2}\right)}}$$

The mean, sum of the deviation squared, and the number of each group was substituted in the formula for M, Σx, and N respectively.

$$\underline{t} = \frac{.13 - .11}{\sqrt{\left(\frac{.04 + .02}{36 + 34 - 2}\right)\left(\frac{36 + 34}{36 \times 34}\right)}}$$

$$\underline{t} = \frac{.02}{\sqrt{(.0009)\,(.06)}}$$

$$\underline{t} = \frac{.02}{\sqrt{.000054}}$$

$$\underline{t} = \frac{.02}{.00735}$$

$$\underline{t} = 2.72$$

The decision theory was applied to the value of t derived from the formula. The table value of t at the .05 level of significance with 68 degrees of freedom is equal to 2.00.[1] The computed value of t was 2.72; therefore, the null hypothesis was rejected. It was noted that the computed value of t was also significant at the .01 level of significance which required a table value of 2.65.

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[1] Robert H. Koenker, Simplified Statistics (Bloomington, Illinois: McKnight and McKnight Publishing Co., 1961), pp. 146-147.

Rejection of the null hypothesis indicated that there was a significant difference between the use of structure words in verbal discourse by Group A and the use of structure words in the verbal discourse by Group B. Group A had a higher mean ratio of errors in the use of structure words in verbal discourse than did Group B.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

In this chapter, summary of the research procedure and results of the research, conclusions to be made, and recommendations for future research are presented.

I. SUMMARY OF RESEARCH PROCEDURES AND RESULTS

The major purpose of the research was to determine whether children who experienced difficulty in the oral reading of structure words also experienced difficulty in the use of structure words in their verbal discourse when compared to the use of structure words in verbal discourse by children who do not experience difficulty in the oral reading of structure words. It was intended that the investigation provide some information about children who have difficulty in reading structure words in connection with the oral language operations with structure words by these children, as recent research provided some evidence that reading deficits may be due to a malfunction in the total language system.

The null hypothesis for the research was set up as follows.

The use of structure words in the verbal discourse of children who experience difficulty in the oral reading of structure words, as determined by a screening device for oral reading, will not differ significantly from the use of structure words in the verbal discourse of children who do not experience difficulty in the oral reading of structure words, as determined by a screening device for oral reading.

A review of related literature was undertaken to obtain any research regarding the use of structure words and the correlations between language skills, particularly between reading ability and oral language ability, and to obtain the ideas of experts on the particular topics. The literature collected was used in forming the procedure for the investigation.

In order to test the hypothesis, the population of fourth grade pupils in selected elementary schools in Lafayette County, Mississippi, who had been qualified according to the pre-determined criteria had to be divided into two groups. Each student was administered a screening device for oral reading and structure word errors were represented as the percentage of structure word errors made to the total number of structure words contained in the screening device. On the basis of the scores on the screening device for oral reading and the established criteria for the device, the pupils were divided into Group A whose members had difficulty in the oral reading of structure words and Group B whose members did not have difficulty in the oral reading of structure words.

A verbal discourse sample, which contained approximately the same number of words as was contained in the screening device for oral reading, was procured for each child. The samples were transcribed and analyzed for structure word errors, which were represented as the ratio of the number of structure word errors made to the total number of structure words used in the sample of verbal discourse. The mean ratio of errors was established for each group. A t test was used to test the significance of the difference between the mean ratio of errors for Group A and the mean ratio of errors for Group B.

The conditions for acceptance of the null hypothesis were as follows:

1. Reject the hypothesis at the .05 level of significance if the t score is less than 2.00.

2. Accept the hypothesis except under the conditions listed in 1 above.

A significant difference was obtained between the mean ratio of errors for Group A and the mean ratio of errors for Group B; therefore, the null hypothesis was rejected. It was found that Group A had a significantly higher mean ratio of structure word errors in verbal discourse when compared to the mean ratio of structure word errors for Group B.

II. CONCLUSIONS

On the basis of the results of the investigation, the following conclusions were made.

1. There was a significant difference between the mean ratio of structure word errors in verbal discourse samples of Group A and the mean ratio of errors in verbal discourse of Group B. This indicated that there is a significant difference between the use of structure words in the oral language of children who have difficulty in the oral reading of structure words and the use of structure words in the oral language of children who do not have difficulty in the oral reading of structure words at fourth grade level.

2. Since Group A had a significantly higher mean ratio of structure word errors than did Group B, it was concluded that in the study, fourth grade children who had difficulty in the oral reading of structure words had significantly greater difficulty in the use of structure words in verbal discourse when compared to the verbal discourse of children who did not have difficulty in the oral reading of structure words; therefore, there did exist a relationship between the fourth grade child's reading of structure words and his oral language use of structure words. As a group, those children who had difficulty with structure words in their oral reading also had difficulty with structure words in their verbal

discourse. Those children who did not experience difficulty with oral reading of structure words also did not experience structure word difficulties in verbal discourse, when considered as a group.

III. RECOMMENDATIONS

1. Children who have difficulty in oral reading of structure words should be carefully observed for evidence of similar difficulty in oral language. Those children who had been identified as having difficulty in reading structure words and in using them in oral language should be given special opportunities to develop this aspect of their language.

2. Structure words should be introduced to children in context since they have no lexical meaning and only function in context with lexical words. An experience approach should be useful in helping children learn to read structure words and in giving them opportunities for oral language expression.

3. In the experiment those pupils who had difficulty in oral reading of structure words also had difficulty with structure words in verbal discourse, indicating a general language disability; therefore, it is recommended that pupils who have been identified as having a general language disability be given intensive training in general language development in addition to instruction to improve their structure word usage in reading.

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APPENDIX

EXHIBIT A

CHILD'S COPY OF SCREENING DEVICE FOR ORAL READING

The Wild Colt's Lesson

War Paint was a wild colt whose spotted hide looked as if brushfuls of paint had been spilled all over it. With a herd of wild horses, he wandered over the broad western plains as free as the wind.

The favorite sport of the frisky colts was a kind of boxing. Standing up on their hind legs, the youngsters would paw at each other with their forefeet. This play helped them become sure-footed. It also taught them how to defend themselves in time of danger.

One day War Paint and his partner, Nosey, started off to explore a deep gully. They had not gone very far when War Paint heard his mother whinny to him. Nosey went on, but War Paint hesitated. Then Nosey looked back. He seemed to be saying, "Oh, come on. Let's see what's in this gully."

So War Paint paid no more attention to his mother's warning whinny. He pranced boldly after his partner.

The colts went a short distance into the gully. Then suddenly a stone came rattling down a bank. The startled animals whirled. There stood a prairie wolf, ready to pounce!

Instantly the terrified colts started back toward the herd, trying to seek escape up the rocky cliff. Nosey deserted his partner and bolted up the gully to safety.

The spotted colt dodged this way and that in terror. But the crafty wolf dodged, too. Once more the beast lunged furiously at the colt's hind legs. War Paint slashed out with his heels to defend himself.

War Paint saved his legs, but the wolf's powerful jaws scraped his side. Squealing with pain, the colt tried again to flee from the gully. His playful adventure had become a desperate fight for life.

Fiercely the killer sprang after the injured colt. War Paint was wild with terror. He was cornered again. The big wolf lunged a third time. Fortunately, War Paint leaped high in the air just as the wolf threw himself forward.

The wolf was so intent on his prey that he did not hear the pounding hoofs at the top of the gully. Suddenly a black thunderbolt shot down the side of the rocky cliff. With ears laid back and teeth bared, War Paint's mother plunged to his rescue.

Caught completely off guard, the wolf had no chance to escape. The enraged mare gave a lightninglike lunge and sank her teeth into the wolf's hide. Then with a quick toss of her head she cast the wolf into a big clump of sharp-thorned cactus. He lay quite still. Apparently he was badly injured.

The black mare's eyes gleamed with fury. Instantly she plunged into the cactus after the wolf. Her powerful forefeet were ready to slash the enemy and teach him the lesson he deserved. But just in time the wolf got to his feet and limped swiftly away.

War Paint's mother did not try to follow him. Instead, she turned to her trembling colt and whinnied. When the colt whinnied in reply, she nosed him over gently.

EXHIBIT B

EXAMINER'S COPY OF SCREENING DEVICE FOR ORAL READING

NAME ____________________ WORDS MISUSED

IQ SCORE ________________ A. STRUCTURE WORDS ______

BIRTH DATE ______________ B. LEXICAL WORDS ______

ACHIEVEMENT SCORE ________

$\overset{\text{1B}}{\underline{\text{The}}}$ Wild $\overset{\text{1C}}{\underline{\text{Colt's}}}$ Lesson

War Paint was $\overset{\text{1B}}{\underline{\text{a}}}$ wild colt $\overset{\text{5B}}{\underline{\text{whose}}}$ spotted hide looked $\overset{\text{5A}}{\underline{\text{as if}}}$ brushfuls $\overset{\text{3}}{\underline{\text{of}}}$ paint $\overset{\text{2B}}{\underline{\text{had}}}$ $\overset{\text{2B}}{\underline{\text{been}}}$ spilled all $\overset{\text{3}}{\underline{\text{over}}}$ it. $\overset{\text{3}}{\underline{\text{With}}}$ $\overset{\text{1B}}{\underline{\text{a}}}$ herd $\overset{\text{3}}{\underline{\text{of}}}$ wild horses, he wandered $\overset{\text{3}}{\underline{\text{over}}}$ $\overset{\text{1B}}{\underline{\text{the}}}$ broad western plains $\overset{\text{4}}{\underline{\text{as}}}$ free $\overset{\text{3}}{\underline{\text{as}}}$ $\overset{\text{1B}}{\underline{\text{the}}}$ wind.

$\overset{\text{1B}}{\underline{\text{The}}}$ favorite sport $\overset{\text{3}}{\underline{\text{of}}}$ $\overset{\text{1B}}{\underline{\text{the}}}$ frisky colts was $\overset{\text{1B}}{\underline{\text{a}}}$ kind $\overset{\text{3}}{\underline{\text{of}}}$ boxing. Standing $\overset{\text{3}}{\underline{\text{up on}}}$ $\overset{\text{1B}}{\underline{\text{their}}}$ hind legs, $\overset{\text{1B}}{\underline{\text{the}}}$ youngsters $\overset{\text{2A}}{\underline{\text{would}}}$ paw $\overset{\text{3}}{\underline{\text{at}}}$ each other $\overset{\text{3}}{\underline{\text{with}}}$ $\overset{\text{1B}}{\underline{\text{their}}}$ forefeet. $\overset{\text{1B}}{\underline{\text{This}}}$ play helped them become sure-footed. It also taught them $\overset{\text{5A}}{\underline{\text{how}}}$ to defend themselves $\overset{\text{3}}{\underline{\text{in}}}$ time $\overset{\text{3}}{\underline{\text{of}}}$ danger.

$\overset{\text{1C}}{\underline{\text{One}}}$ day War Paint $\overset{\text{6}}{\underline{\text{and}}}$ $\overset{\text{1B}}{\underline{\text{his}}}$ partner, Nosey, started off to explore $\overset{\text{1B}}{\underline{\text{a}}}$ deep gully. They $\overset{\text{2B}}{\underline{\text{had}}}$ $\overset{\text{9}}{\underline{\text{not}}}$ gone $\overset{\text{4}}{\underline{\text{very}}}$ far $\overset{\text{5A}}{\underline{\text{when}}}$ War Paint heard $\overset{\text{1B}}{\underline{\text{his}}}$ mother whinny $\overset{\text{3}}{\underline{\text{to}}}$ him. Nosey went on, $\overset{\text{6}}{\underline{\text{but}}}$ War Paint hesitated. Then Nosey looked back. He seemed to $\overset{\text{2B}}{\underline{\text{be}}}$ saying, "$\overset{\text{8}}{\underline{\text{Oh}}}$, come on. $\overset{\text{10}}{\underline{\text{Let's}}}$ see $\overset{\text{5A}}{\underline{\text{what}}}$'s $\overset{\text{3}}{\underline{\text{in}}}$ $\overset{\text{1B}}{\underline{\text{this}}}$ gully."

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                          1B 1C             3  1B  1C
        So War Paint paid no more attention to his mother's
                                   3     1B
warning whinny.  He pranced boldly after his partner.
        1B             1B               3    1B
        The colts went a short distance into the gully.  Then
         1B                    3    1B        1B
suddenly a stone came rattling down a bank.  The startled
                  11          1B
animals whirled.  There stood a prairie wolf, ready to pounce!
                  1B                                  3   1B
        Instantly the terrified colts started back toward the
                             3 1B
herd, trying to seek escape up the rocky cliff.  Nosey deserted
1B           6          3 1B         3
his partner and bolted up the gully to safety.
        1B                      1B        6   1B  3
        The spotted colt dodged this way and that in terror.
 6   1B                                      1B
But the crafty wolf dodged, too.  Once more the beast lunged
           3  1B  1C                                        3
furiously at the colt's hind legs.  War Paint slashed out with
 1B
his heels to defend himself.
                          1B       6   1B   1C
        War Paint saved his legs, but the wolf's powerful jaws
         1B                   3          1B
scraped his side.  Squealing with pain, the colt tried again
         3    1B          1B                    2B        1B
to flee from the gully.  His playful adventure had become a
                 3
desperate fight for life.
                  1B                 3    1B
        Fiercely the killer sprang after the injured colt.  War
                3                2B                   1B
Paint was wild with terror.  He was cornered again.  The big
            1B 1C
wolf lunged a third time.  Fortunately, War Paint leaped high
 3  1B        5A    1B
in the air just as the wolf threw himself forward.
         1B           4         3  1B        5A     2B  9
        The wolf was so intent on his prey that he did not
      1B                 3  1B      3  1B                  1B
hear the pounding hoofs at the top of the gully.  Suddenly a
                         3    1B      3  1B                 3
black thunderbolt shot down the side of the rocky cliff.  With
                6                   1B                      3
ears laid back and teeth bared, War Paint's mother plunged to
his rescue.
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Caught completely $\overset{3}{\underline{\text{off}}}$ guard, $\overset{\mathrm{1B}}{\underline{\text{the}}}$ wolf had $\overset{\mathrm{1B}}{\underline{\text{no}}}$ chance to escape. $\overset{\mathrm{1B}}{\underline{\text{The}}}$ enraged mare gave $\overset{\mathrm{1B}}{\underline{\text{a}}}$ lightninglike lunge $\overset{6}{\underline{\text{and}}}$ sank $\overset{\mathrm{1B}}{\underline{\text{her}}}$ teeth $\overset{3}{\underline{\text{into}}}$ $\overset{\mathrm{1B}}{\underline{\text{the}}}$ $\overset{\mathrm{1C}}{\underline{\text{wolf's}}}$ hide. Then $\overset{3}{\underline{\text{with}}}$ $\overset{\mathrm{1B}}{\underline{\text{a}}}$ quick toss $\overset{3}{\underline{\text{of}}}$ $\overset{\mathrm{1B}}{\underline{\text{her}}}$ head she cast $\overset{\mathrm{1B}}{\underline{\text{the}}}$ wolf $\overset{3}{\underline{\text{into}}}$ $\overset{\mathrm{1B}}{\underline{\text{a}}}$ big clump $\overset{3}{\underline{\text{of}}}$ sharp-thorned cactus. He lay $\overset{4}{\underline{\text{quite}}}$ still. Apparently he $\overset{\mathrm{2B}}{\underline{\text{was}}}$ badly injured.

$\overset{\mathrm{1B}}{\underline{\text{The}}}$ black $\overset{\mathrm{1B}}{\underline{\text{mare's}}}$ eyes gleamed $\overset{3}{\underline{\text{with}}}$ fury. Instantly she plunged $\overset{3}{\underline{\text{into}}}$ $\overset{\mathrm{1B}}{\underline{\text{the}}}$ cactus $\overset{3}{\underline{\text{after}}}$ $\overset{\mathrm{1B}}{\underline{\text{the}}}$ wolf. $\overset{\mathrm{1B}}{\underline{\text{Her}}}$ powerful forefeet were ready to slash $\overset{\mathrm{1B}}{\underline{\text{the}}}$ enemy $\overset{6}{\underline{\text{and}}}$ teach him $\overset{\mathrm{1B}}{\underline{\text{the}}}$ lesson he deserved. $\overset{6}{\underline{\text{But}}}$ just $\overset{3}{\underline{\text{in}}}$ time $\overset{\mathrm{1B}}{\underline{\text{the}}}$ wolf got $\overset{3}{\underline{\text{to}}}$ $\overset{\mathrm{1B}}{\underline{\text{his}}}$ feet $\overset{6}{\underline{\text{and}}}$ limped swiftly away.

$\overset{\mathrm{1B}}{\underline{\text{War Paint's}}}$ mother $\overset{\mathrm{2B}}{\underline{\text{did}}}$ $\overset{9}{\underline{\text{not}}}$ try to follow him. Instead, she turned $\overset{3}{\underline{\text{to}}}$ $\overset{\mathrm{1B}}{\underline{\text{her}}}$ trembling colt $\overset{6}{\underline{\text{and}}}$ whinnied. $\overset{\mathrm{5A}}{\underline{\text{When}}}$ $\overset{\mathrm{1B}}{\underline{\text{the}}}$ colt whinnied $\overset{3}{\underline{\text{in}}}$ reply, she nosed him over gently.

Key for Identification of Structure Words

1. Noun Marker
    - A. Pre-determiner
    - B. Determiner
    - C. Post-determiner
2. Verb Marker
    - A. Modal Auxiliary
    - B. Auxiliary
3. Phrase Marker (Preposition)
4. Adjective or Adverb Marker
5. Clause Marker
    - A. Subordinate Conjunction
    - B. Relative Pronoun
6. Coordinator (Coordinate Conjunction)
7. Question Marker
8. Conversation Starter
9. Negative
10. Proposer
11. Expletive
12. Introducer

EXHIBIT C

SAMPLE TRANSCRIPTION OF VERBAL DISCOURSE FOR GROUP A

BHAL

one time we went to louisiana and my grandma and grandpa lived with me and we went down there so grandpa got on one side and grandma got on the other and so whenever we stopped to get gas grandpa got on same side grandma did an' daddy was driving along down there and he thought the car was gonna turn over both of them was on the same side and we came over there and stopped and he said yall better change sides before this car turns over so they changed sides and we was going down through there an' we hit this bump and grandma goes ouch and she said and whenever we got there we went to the gulf of mexico and we got down here and there was this great big ol' fosh i mean fish on my line and i couldn't bring it in and i thought it was a fish and whatever and when i tried to bring it in daddy said come on bring it in it was a log i had my line caught on a log and it tore my rod and reel all up and i had to get another one and daddy caught a crab an' it got up there and it was snapping up there and daddy said come on hold on now and that thing went over there "chinch" and it cut off and you could just see line floating over there and we came back and we was upon one of these great ol' big houses and grandma was up there and she could see all over those wells and things out there an' she looked out there and and she said oh it's a nice breeze up here and then a great big ol' breeze comin' and she said b-r-r-r i'm gonna go get my coat an' so the first time i started to go down then to go swimming i went down there with all those great big ol' waves were coming in and i couldn't jump 'em so this great big ol' wave came through there and i was out there and i went ah-h-h and and i got a mouthful of water and so i didn't stay out there long i came back where they started breaking an' this great ol' big one came up and i said i ain't gonna stay here no more and i ran on through this little lake of a thing and it was this little crab down there and he caught my toe and i went ah-h-h and boy i was taking on down through there and it was just hanging on to my toes and i said whew i ain't gonna wade this thing and there was a whole bunch of sand crabs out there and when i got there they liked to never got that thing off my toe

EXHIBIT D

SAMPLE TRANSCRIPTION OF VERBAL DISCOURSE FOR GROUP B

BMBL

i went to memphis the other day last saturday it was and i seen we went to the zoo and we ate at a restaurant an' went into the shoe house we had a whole lots of fun an' uh we went to get a whole lots of fish for our aquarium we got rocks and shells uh my uncle supposed to send us some more stuff from san diego uh we went to dixie mart and i got lost and they had to hunt me all over the store and uh they had some real pretty stuff up there and we got a little puppy up there we seen this monkey an' he would jump in my face and try to scare us and then up there we went in this thing it's where these birds were and we seen 'em an one said hey nelly and it was giant one a great ol' big one and they had this pekinese puppies and all kind and these fish and dogs and everything that you need for a pet shop we'll probably go back tomorrow and we'll probably go somewhere tonight

we went outside to play yesterday at recess an' these boys jerry bishop no not him it was james williams and john wayne and we was on these monkey bars and we didn't know that we was supposed to get on them me and these other girls and we did it anyway those boys told us to get down so we did and these boys kept on pulling our hair and bothering us so finally we started chasing them an' everything and finally they quit and then we and them uh then we come in the music room and we set down and i didn't know i was supposed to come she was calling our names out for this test and i come on in here and thought it was for this and so i sorta got mixed up and so i told miss walters whenever i got back into the room and she said that that would be o.k.